Volume 89 Number 12

STEEL

For forty-eight years—IRON TRADE REVIEW

PRODUCTION ◆ PROCESSING ◆ DISTRIBUTION ◆ USE

This Week in Steel

A GUILD of all producers of steel, making common cause through the American Iron and Steel institute or its equivalent, exchanging trade information freely, synchronizing production with consumption, regarding labor as attached to the industry and not to individual producers, with the federal government on the sidelines to preserve the altruistic motive—thus would the "new constitution of industry" proposed (Page 15) by the president of General Electric apply to raw steel. Benevolent collectivism is his formula for stabilizing industry, elevating its administration from a parochial to a universal basis, increasing labor's participation, sparing the nation the distress of prince-or-pauper fluctuations.

Too Soon To Plan for Long Pull?

Certain to provoke widespread discussion, the Swope plan for "lasting relief from hard times" typifies the viewpoint that the present storm is blowing itself out and it is not too early to prepare to avert or erect defenses against the next one . . . . Another viewpoint is that of the head of Cities Service when moved by the appeal of the American Society of Mechanical Engineers for $500,000 with which to study the depression, caused, so it said, by an unbalance of production, distribution and consumption. Here is $500,000, said this utility magnate (Page 16), but devote it to discovering an immediate remedy, not to inditing a labored, scientific treatise.

Would Balance Materialism With Art

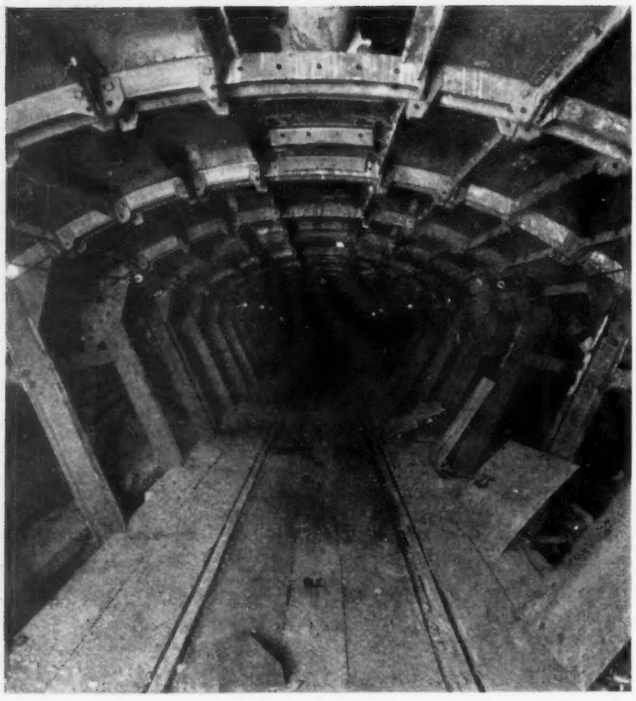
Still another solution, advanced (Page 18) by the president of the American Engineering council, is to undertake vast public projects—art museums, conservatories of music, outdoor recreation facilities—financed by a more equitable system of taxation and balancing material activities with cultural ones . . . . After analyzing 200 questionnaires, the New England council sees eye to eye with Mr. Swope in concluding (Page 17) that stability of employment is the essence of any program for routing depression, and that this stability must come through efficiency of management, not by governmental fiat.

Steel Wage Reduction Seems Near

Meanwhile, steel like other industries appears to be facing the very pressing problem of reducing its costs, and of all important items of outgo only wage rates retain their 1929 level. The conviction grows (Page 16) that steel within a few weeks will come to grips with this problem and

Wide World Photo

Man, materials and machinery: Making rotors for the motors to equip 90 new electric locomotives for the Pennsylvania railroad, at Westinghouse Electric & Mfg. Co.'s East Pittsburgh, Pa., works



Steel crunches its way through the rock underlying New York, then helps line the resulting tunnel which will augment the city's water supply. Steel forms by the Blaw-Knox Co., Pittsburgh, are set, then a pneumatic gun places the concrete

order an adjustment . . . . Belgium, facing the same emergency, is reducing wages in its steel industry 5 per cent Nov. 1 (Page 75), with a second 5 per cent due later.

Auto Industry Waiting-Out Market

Before the matter of wages is finally disposed of, it may have a major market significance. At Detroit, for example, it is intimated (Page 24) that the automotive industry may be dilatory in ordering steel for new models because it wants to determine if lower wages mean cheaper steel. . . . Presumably, if steel were assured that a reduction would restore confidence and set in motion a wave of buying that would actually fatten labor's pay envelope, its loathness would be overcome (Page 49). . . . Were wages to be reduced 10 per cent, the saving to the steel industry on the basis of July payrolls would be at the rate of $21,000,000 annually, or almost one-eighth (Page 16) of the industry's 1930 net.

Gain in Production Not Convincing

Steelmaking operations this week have recouped all of the loss occasioned last week by the Labor day holiday and, in addition, have expanded one point to 32 per cent. (Page 56), yet so sluggish are the steel markets generally that confidence is waning. . . . Line pipe business (Page 59) has been quickened by the award of two lines, requiring 42,000 tons. . . . Structural awards (Page 54) topped by two southern bridges are heavier than a week ago. . . . More lake freighters have been laid up (Page 53) even though curtailed shipments have reduced lower lake dock stocks to within 145,000 tons of Sept. 1 last year. . . . Tin plate needs are lower (Page 53) as canners restrict packs. . . . For slotted keys attached to cans for opening, 500 tons of steel (Page 40) are required annually.

Research That Is Depression-Proof

Corrosion-resistant steels present so alluring a market that research on them survives even rigorous economy programs . . . . Fabricators are learning to spin these steels, the 18-8 analysis being preferred because of its greater ductility. Spinning tools of nickel-chromium cast iron and water soluble lubricants are recommended (Page 33); large parts can be spun without intermediate annealing . . . . A Pittsburgh district manufacturer, striving to overcome the handicap of high cost, is offering (Page 36) a veneer having a backing of open-hearth steel to which is welded chromium or chrome-nickel steel.

Better Annealing in Less Time

Another objective of metallurgical research is a 50 per cent reduction in the time required for perfect anneals of high-speed steel. This was attained recently with a pit type electric furnace (Page 35), heats being obtained in 24 hours and with less scale on the work on emerging than when charged . . . . A 50 per cent reduction in scale was the goal of a New England wire producer in the continuous annealing of wire in patenting furnaces. Success came (Page 31) with a switch from natural to anthracite gas . . . . Breaking down sales in 1929 of fabricated wire products, the census bureau shows (Page 19) sales to wholesalers constituted 42 per cent, to consumers 44, to miscellaneous 14.

Scraps Graduate to Major Industry

On the basis of its volume in 1929, even though probably a peak year, scrap is entitled to a high rating. A survey discloses (Page 19) that its turnover in 1929 was $280,000,000, its employes numbered 200,000, its payrolls totaled $13,000,000 . . . . Scrap, like the remainder of the steel industry, will figure in the opposition at oral hearings (Page 23) in the 15 per cent freight rate case beginning Sept. 21. . . . Southern freight rates on pig iron, the interstate commerce commission holds (Page 17), are not unreasonable, discomfiting northern producers.

Collectivism Is Swope's Formula for Stabilization

A PLAN to win back and to hold prosperity—a plan with more points to it to stir the imagination of industrial America than any yet evolved from recent economic experience—is that proposed by Gerard Swope, president, General Electric Co. Speaking to the National Electrical Manufacturers association in New York, Sept 16, Mr. Swope in effect addressed a message to the public which is likely to receive widespread discussion.

A welding together of employers, employes and federal agencies—the latter only for the protection of the general public—in arrangement such as never before suggested, is the essence of Mr. Swope's plan.

The administration of industry would be lifted "from a parochial to a universal basis" in this country. Policies would no longer apply to a single unit but to a given industry as a whole, or to the entire range of industry. The plan is a new constitution for industry, which its sponsor says "promises lasting relief from hard times."

Control of production, and its synchronizing with consumption, would be vested in trade associations, under federal supervision. Employes would participate in industry to a degree heretofore unattained; their employment would be insured.

Labor's Service Protected

Workers would receive uninterrupted benefits no matter in what shop or in what unit of industry they had worked and saved. Thus, their protection would be co-extensive with a lifetime of service.

The breaking down of the barriers which, Mr. Swope said, now coerce both industry and labor, would be accomplished through trade associations, and would involve the organization of a federal supervisory body to safeguard the public from exploitation. Underlying Mr. Swope's proposals are five basic principles:

Regularity and continuity of employment through the stabilization of industry, with unemployment insurance as a reservoir of safety.

Leadership by organized industry to avoid the lack of uniformity and co-ordination inseparable from direction by the legislatures of the states.

Standardized forms of reports to stockholders to enable them as owners to be thoroughly and continuously informed as to the progress of their business.

Co-ordination of production and consumption on a broader and more intelligent basis designed for the particular benefit of wage earners.

Promotion of individual initiative and enterprise, and the protection of the public through federal supervision.

"Legislation," Mr. Swope said,

Gerard Swope

—"Industry must act to forestall legislation threatening fundamentals of American business"

"will be required to make such a plan possible, including the probable modification of some existing laws."

Each industry would establish a trade association to be under the supervision of the federal trade commission, a bureau of the department of commerce, or federal supervisory body specially constituted.

These associations would outline trade practices, business ethics, methods of standard accounting and cost practice; they would collect and distribute information on volume of business, inventories of merchandise on hand, standardization of products, stabilization of prices, and all matters which may arise relating to the growth and development of industry.

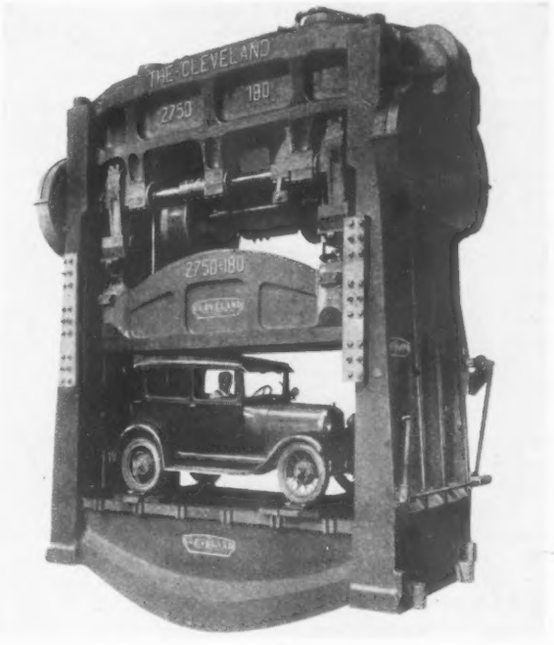
Companies of an industrial or commercial character having 50 or more employes and doing an interstate business would come within the plan, to which they would be required to adhere within three years unless the time should be extended by the federal supervisory body.

Ample Insurance Provided

For the protection of their employes, the participating companies must adopt employe plans providing for workmen's compensation, life and disability insurance, pensions, and unemployment insurance.

The pension provision includes contributions by employes to a minimum of 1 per cent, and approximately equal contributions by the company. The unemployment insurance plan would require equal contributions by the company and the employe, and the payment in times of lay-off amounting to 50 per cent of average full-time earnings up to a maximum of $20 per week. The principle of joint participation and joint administration by management and men in these several employe plans is to be followed.

In addition, a general board of administration would be formed by each trade association, this board to



The touch of a finger on a push botton can cause this press to exert a pressure of 600 tons. One of the largest of its type, it weighs approximately 250 tons. The bed casting, made of steel, weighs 51½ tons. The bed area is sufficient to berth an automobile, as noted in the illustration. The press, built by the Cleveland Punch & Shear Works Co., Cleveland, is to be used in the production of automobile stampings

have nine members representing the trade association, the employes of the member companies, and the public. The general board of administration would constitute a body of overseers.

"The plan," said Mr. Swope, "tends to put all domestic corporations of the class described on a parity for domestic business, thereby removing the inequalities of the different laws in the several states. It places on organized industry the obligation of co-ordinating production and consumption and of a higher degree of stabilization.

"This will tend to assure more uniform and continuous employment. The cost of the product will include these items, and will therefore be paid for by users of the article or service, and not in general by members of the community who are reached by the vicarious methods of the imposition of a tax."

Steel Wage Cut Believed Near

Opinion in the steel industry appears to be more general that a reduction in steel wage rates is inevitable, and that it is coming at a comparatively early date, Oct. 1 being most frequently mentioned as the time it probably will be effective.

Nevertheless, officials of the two leading companies deny that a definite decision has been reached as yet.

Steel manufacturers are aware of the fact that a reduction in wage-earners' hourly rates is not likely to result immediately in more work for them, such as would increase their income and their buying power. But, it is believed, it would convince buyers, who now hesitate to place orders, that labor costs have been fully liquidated. Consumers expect that any further economies which are effected through a reduction in wage rates will be passed on to them. Confidence in the stability of prices is viewed as an all-important consideration.

The bureau of labor statistics shows that the average number of wage-earners employed in iron and steel manufacture in July was 200,220, and their weekly payroll was $4,127,714. With a reduction of 10 per cent in wage rates, on the basis of payrolls as in July, the steel industry's yearly labor bill would be cut approximately $21,000,000.

On the other hand, steel manufacturers themselves who have been seeking to maintain wage rates call attention to the reduced earnings of their men, due to curtailed operations. Per capita weekly earnings in July were $20.62, according to the federal labor bureau, 20.6 per cent less than in July last year. In building construction per capita weekly earnings in July were $29.81.

Youngstown Wages Lower

Youngstown, O.—Wage disbursements in Youngstown in August totaled $4,334,567, compared with $4,626,576 in July, and $6,655,228 in August, 1930.

Offers $500,000 To Find Unemployment Remedy

New York—As result of a statement made recently by Roy V. Wright, president of the American Society of Mechanical Engineers, that $500,000 was needed to discover a remedy for the present industrial situation, Henry L. Doherty, president of the Cities Service Co., has made an offer of that sum for the purpose.

According to Mr. Wright, engineers and scientists caused the depression by throwing production out of balance with consumption and distribution and stated that money was needed to provide for a study of the situation.

In making the $500,000 offer, Mr. Doherty disagreed that applied science is responsible for the present unemployment. The need, he said, is for "a remedy that can be promptly applied," therefore the sum is to be used for an unemployment remedy and not for lengthy research. All proposals he had seen so far, he added, had been rejected "as being worthless, if not fantastic."

Amalgamated "Legalizes" Strike at Canonsburg

A strike has been "legalized" by the Association of Iron, Steel and Tin Workers against the Canonsburg Iron & Steel Co., Canonsburg, Pa., according to the association's official publication. This, it reports, was after "15 years of splendid relations."

The company refused to sign the wage scale July 1 because of certain extras which a large number of non-union mills did not recognize. The company announced it would pay the Amalgamated scale, less the extras.

Efforts by the association to induce the company to change its position have failed. Operations are continuing in accordance with current business conditions.

Ohio Employment Down Two Per Cent in August

Industrial employment in Ohio in August was 2 per cent less than in July, according to the business research bureau, Ohio State university, Columbus, O. The reduction in manufacturing industries was 1 per cent. In steelworks and rolling mills there was no change, the bureau reports, "comparing favorably with the five-year-average decrease of 1 per cent." In the nonmanufacturing industries the decline was 3 per cent, and in construction industries, 5 per cent.

Now It's September—Come On, Let's Go!

THE road to the end of 1931 *is a short road. We are entering the final quarter of a race that's only for the Swift, the Sure, the Sound.*

Nor is this a race that pays only those who cross the finish line. In this race everyone who runs and keeps on running—everyone who competes and continues aggressively to keep on competing—has a share in the purse.

On the desks, in the files and within reach of hundreds of us who are responsible for the "Go ahead" of enterprise are orders, commitments, plans and specifications that need but a nod or an initial, a suggestion or an instruction to start men working, be made somehow, somewhere—and money circulating.

There are stocks to be replenished, materials to be fashioned, mines and quarries to be opened, crops to be harvested—and there's money that must be made somehow, somewhere—and soon.

For months this situation has held. For months you have been waiting. We have been waiting. We have been waiting for each other, for ourselves —and for some intangible thing that we know will motivate us to positive and profitable action.

It's September now—come on, let's go!

There are banks to reorganize, banks to reopen. Safety-deposit vaults, tin cans, mattresses, and trunk bottoms, hold millions of inactive, profitless dollars that want to be put back to work.

"By September" many have reasoned, "the worst will be over. Securities will be at rock bottom. Real-estate will have breathed its last inflated gasp. Prices will be advantageous and sellers eager to make any manner of concession to get business."

Now it's Septmber. The worst is over. Securities are down. Real-estate has been deflated. Prices for most of life's necessities and the majority of its luxuries have been driven to a point unanticipated—and in some industries unwarranted.

But it's September now. It's the month we've all been waiting for. Come on, let's go!

—CHICAGO JOURNAL OF COMMERCE

The average seasonal gain for the latter, it is pointed out, is 4 per cent.

I. C. C. Sustains Southern Rates

Washington—In a tentative report submitted to the interstate commerce commission by Examiner Frank C. Weems, rates on pig iron, in carloads, from Birmingham, Ala., and related producing points in the South to Gulf ports, South Atlantic ports and Norfolk ports for coastwise movement beyond were found "not unreasonably low or unduly prejudicial."

The proposed decision includes the cases of the Alan Wood Steel Co. agains the Alabama Great Southern railroad and the case of the Hanna Furnace Co. against the same road.

Furnaces in Massachusetts, New York and Pennsylvania instituted the complaint in which they stated rail rates on pig iron from Birmingham and related southern points including Chattanooga and points grouped with it, to South Atlantic and Gulf ports for barge movement beyond and joint rail and water rates between southern ports and eastern and New England ports are unreasonably low.

Examiner Weems in the decision found also that "the commission is without authority to prescribe minimum rates on pig iron from southern producing points named in the complaint, moving under joint rates over joint rail-and-water or rail-water-rail routes via Norfolk, Va., and other southern and Gulf ports to north Atlantic ports, or beyond to inland destinations, except on traffic moving over the Central of Georgia railway to Savannah, Ga., and the Ocean Steamship Co. of Savannah beyond."

Iron, Steel Wholesale Price Index Rises in July

Washington—July iron and steel wholesale price index number was 87.1, compared with 86.9 for June and 90.7 for July, 1930, taking 1926 at 100, according to the bureau of labor statistics.

Nonferrous metals index number for July was 59.4, compared with 58.9 for June and 73.5 for last July, while for "metals and metal products" July number of 87.5 compared with 87.4 for June and 94.3 for July, 1930.

July wholesale price index number for structural steel was 84.3, against 84.3 for June and 84.3 last July.

New England Views Stability Of Employment as Crucial

MANAGEMENT is concentrated on finding a solution of "today's most pressing problem—stability of employment." This is the opinion of the New England council's industrial committee, which recently asked 200 New England executives for their views and suggestions on business conditions. This concentration, the committee concludes, is a hopeful sign.

A substantial number of New England business men declared, in effect, that management and not government is the source from which will come the most effective measures for stabilizing employment. Industrialists in all six states are seeking to develop in their own fields effective measures.

Social Responsibility Accepted

Replies to the committee's inquiries show increased acceptance of social responsibility by management, but individual executives vary in their plans for stabilizing employment, and in the degree of responsibility they are willing to accept. Some have been able by more intensive sales effort, by improving their products or by developing new ones, to continue operating at capacity. Others, faced with heavy curtailment in orders, have made every effort "to level out their productive hours through the adjustment of inventories and the regularization of production by increasing or decreasing inventories in accordance with seasonal fluctuations in business."

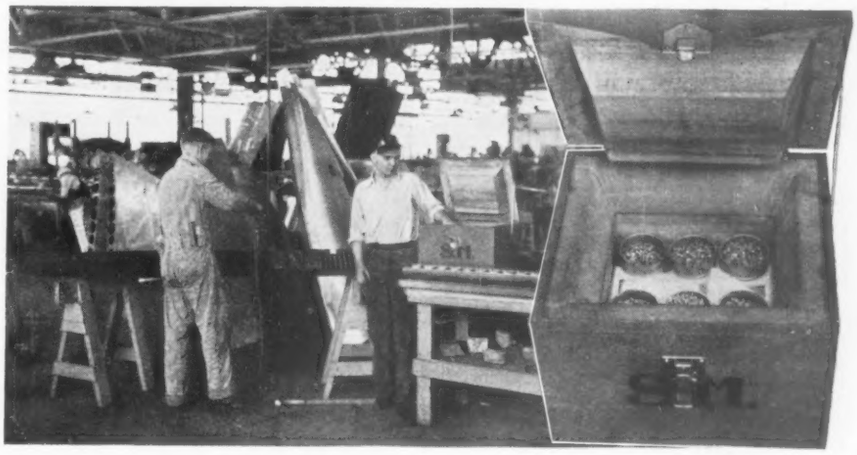
Many executives have become convinced of the feasibility of budgeting production so as to level out peak seasons and slumps. Some are advocating plans of contributory employment reserves. One believes his company may be able to develop a fund similar to the sick benefit fund already in operation, to which both employes and employer contribute. A few companies have already established reserves, which are being used to supplement the pay of employes at the present time.

"I believe management is capable of solving the problem (of reserves)" one writer stated. "If management decides that it wants to do it, the rest should be easy."

Buoy Chain Near Award By Lighthouse Bureau

New York—American Chain Co. Inc., Bridgeport, Conn., and United States Chain & Forging Co., Pittsburgh, have been recommended for the contract to supply approximately 175 tons of chain for the lighthouse bureau, Staten Island, N. Y. Included in the tonnage, the larger portion of which has been recommended for the Bridgeport firm, are 357 pieces of 15-fathom ⅞ to 1⅝-inch wrought iron open link buoy chain and eight buoy bridle chains.

Bids on 282 steel buoys, most of them of welded construction, and 42 cast iron sinkers and ballast balls, weighing 105 tons, are being reviewed for recommendation to Washington. Bids were taken last week on the buoys.



Dry ice "preserves" rivets: The ice arrests the age-hardening of heat-treated duralumin rivets; hence the Boeing Airplane Co., Seattle, has developed what might be called a heat-treater's ice box. Formerly it was necessary to heat-treat rivets every half hour, just before using them in the fabrication of airplanes

Tax Wisely, Build for Culture, End Idleness, Says Engineer

VAST public projects to develop the nation's cultural resources are urged as "the way to national progress and prosperity" by Carl E. Grunsky, San Francisco, president of the American Engineering council, in a symposium of the Engineering Foundation, New York, on "Benefits from Engineering Progress."

Mr. Grunsky asserts that the great need is a stabilizer in the form of activities not connected with production of material necessities, which will provide in every country a steady flow of money from hand to hand. He says:

"The nation's spiritual and cultural advancement are of greater importance than provision for material well-being. Expenditures of public funds for such purposes comparable with those for the safeguarding of life and property, for the protection of health and for facilitating the exchange of products would not be unreasonable; but there is fear of the tax burden.

Art Should Be Encouraged

"Under a well balanced program the nation should get vastly more scientific research and educational opportunity. Art should be encouraged by the erection of monuments, the establishment of museums, art galleries, conservatories of music and opera houses with maintenance of opera companies in all centers of population. Expenditures for these purposes would contribute to the spiritual uplift of the people and to the progress of civilization.

"Provision for outdoor recreation should be made throughout the land on a scale never yet approached. Lands should be reserved and acquired so that those who go into the open may find suitable places to picnic and to camp. During periods of declining prices there should be also a speeding up of public works on a sane program.

Hand Work Is Dole

"Recourse to pick and shovel instead of modern appliances is but a trifle above giving a dole with its encouragement of idleness and of return to primitive conditions.

"The basis of such a program is a high rate of taxation, but any suggestion that the government spend more money, particularly in business depressions, is commonly frowned down. The fact is ignored that when capitalists close their purses government must spend to avert disaster.

"Objection should not be to the magnitude of the sum to be raised, but to the prevailing unfair systems of apportioning the tax. If the burden were distributed commensurately with ability to pay, there would be less dissatisfaction and the public would soon learn that the greater the tax the less the slump in the aggregate volume of the country's business.

"Tax money thus put into circulation would create a volume of business that could readily bear the tax from year to year. If money received from taxation, equitably levied, is economically spent at home, it will, in passing from hand to hand, create business in the long run for each taxpayer in substantially the proportion in which he has contributed. Each dollar thus expended by the government should create from $30 to $50 of business in a year with, of course, some shrinkage. There appears to be no reason, in theory, why taxes should not be welcomed.

"Much unproductive property such as furniture and works of art is too heavily taxed. So also is real estate. Why tax the goods or the material which the merchant or manufacturer has in stock when his business is 'in the red'? They should pay something for the privilege of doing business, based on the volume of business, and they should contribute to the government a part of the net profits. The tax on real estate should be just enough to prevent the land from lying idle too long.

Base Taxes on Net Income

"The main guide in fixing the individual's tax should be ability to pay, that is to say, his net income. Taxes should be graded, and there might well be a minimum below which there would be no taxes.

"Unemployment is the most striking symptom of recurrent hard times. This may be attributed to the fact that one man now produces what three or more could produce a few years ago, but it must be remembered that demand in kind and quantity also has vastly increased.

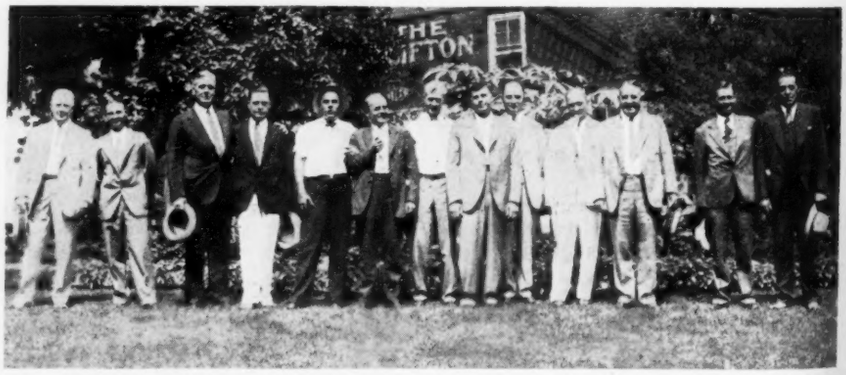
"Depressions would be recurrent even if the typewriter, the harvester, and the automobile had not been invented. The relative number of basic producers has been materially decreased. In consequence increasing numbers must be provided with occupation in distribution, cultural activities and recreation.

"Opportunity to work should be provided for every person dependent on his own efforts. Obviously this opportunity cannot be supplied at the bottom of the scale of human endeavor. Over-production would re-

Sane Tax Methods as Means to Prosperity

HIGH taxes, equitably imposed, expended in times of depression for public works of a cultural character, would return many-fold in profits to those taxed, is the assertion of Carl E. Grunsky, as outlined in the accompanying contribution to a symposium on "Benefits from Engineering Progress."

Mr. Grunsky, president of the American Engineering council, Washington, has been appointed by President Hoover a member of the national organization for unemployment relief headed by Walter S. Gifford. In this connection his views on means to alleviate present conditions are of interest.



Members of the welding section, National Electrical Manufacturers association, were guests of the USL Battery Corp., Niagara Falls, N. Y., at a recent meeting of the group in that city. Those in the photograph, left to right, are: Jack Amos, Hollup Corp.; F. E. Hall, USL Battery Corp.; J. F. Lincoln, Lincoln Electric Co.; L. P. Hume, General Electric Co.; C. J. Holslag, Electric Arc Cutting & Welding Co.; E. W. Kronbach, Una Welding & Bonding Co.; W. W. Reddie, Westinghouse Electric & Mfg. Co.; L. D. Meeker, General Electric Co.; D. H. Kelly, USL Battery Corp.; E. D. Bransome, Wilson Welder & Metals Co.; A. A. MacLean, USL Battery Corp.; O. F. Stroman, Westinghouse Electric & Mfg. Co., and J. L. Fosnight, USL Battery Corp.

sult. There is always room at the top."

Fabricated Wire Sales Nearly Half to Consumers

Distribution of sales by manufacturing plants in the fabricated wire products industry, made from purchased wire, in 1929, as compiled by the bureau of the census, show sales to wholesalers were 42.8 per cent, sales to consumers 44.1 per cent, to their own wholesale branches 4.5 per cent and to retailers 8.6 per cent. Sales to wholesalers were $63,256,000 and to consumers $65,178,000.

A total of 547 manufacturing plants are engaged primarily in the manufacture of fabricated wire products from purchased wire. This does not include plants making these as secondary products.

Total value of fabricated wire products made in all industries is $366,478,493. The sale of 40 per cent of these products is included in this compilation, the remaining 60 per cent being included in sales of the industries where they are produced.

Old Sheet Mill Abandoned

Aetna Standard mill of the American Sheet & Tin Plate Co. at Bridgeport, O., is being dismantled and will be abandoned. It has been idle since May 27.

The mill was established in 1873 as the Aetna Iron Works and in 1900 became part of the American Sheet & Tin Plate Co. At one time 23 sheet mills were in operation but in 1917 17 were dismantled. At the time of the shutdown only a plate mill and a jobbing mill were in operation.

Scrap Turnover $280,000,000 in 1929; Employs 200,000

WHOLESALE dealers in steel and iron scrap in cities of the United States over 100,000 population did a gross volume of business in 1929 amounting to about $280,000,000. This is announced by the Institute of Scrap Iron and Steel Inc., New York, on the basis of the first survey of the scrap iron industry, made by the census bureau at the request of the institute.

Stocks at $11,500,000

In these cities were 757 wholesale establishments with an annual payroll of about $13,000,000. They had stock on hand at the end of 1925 valued at $11,500,000. These figures do not include the numerous small junk yards or scrap collectors and peddlers who sell to the wholesalers in over 16,000 towns. The institute estimates more than 200,000 persons are employed in the entire industry.

This survey indicates that Chicago is the leading steel and iron scrap center of the United States, with a total volume of $32,653,970 in 1929, with Pittsburgh second, at $23,542,448.

Chicago likewise leads in point of stocks and salaries paid.

Figures gathered in this survey will be analyzed and interpreted at the semiannual meeting of the institute at Pittsburgh, Oct. 12-14.

Net sales, salaries and wages in 1929 and stocks on hand Dec. 31, 1929, in principal scrap centers are as follows, as reported by the census bureau:

	Sales	Salaries, wages	Stocks Dec. 31, 1929
Chicago	$32,653,970	$905,569	$518,620
Pittsburgh	23,542,448	687,341	431,961
Youngstown, O.*	18,471,616	573,776	859,757
Cleveland	17,944,237	511,310	201,503
New York	17,785,771	731,063	665,747
Reading, Pa.*	12,236,986	332,034	162,587
Philadelphia	9,853,196	425,116	348,605
Canton, O.*	8,995,325	188,920	208,100
Cincinnati*	7,379,448	361,474	282,493
Buffalo	6,659,527	251,982	346,904
St. Louis	6,517,375	125,479	107,315
Detroit	5,191,104	168,963	122,726
Duluth*	4,243,399	235,304	512,658
Boston	3,144,751	142,880	130,797
Baltimore	2,003,645	118,510	85,308
Milwaukee	1,866,495	125,479	107,315
Birmingham, Ala.*	1,046,732	108,016	125,024

*Includes scrap materials other than iron and steel.

Acme Photo

Twin crowns for Peacock Alley: Domes of these towers atop the new Waldorf-Astoria hotel, New York, are made of copper sheet and aluminum leaf; surmounted by beacons, 625 feet above Park avenue. Steel carries the load, but gets no credit

Financial News of Steel Industry

CLEVELAND CLIFFS IRON CO., Cleveland, owned by the Cliffs Corp., has passed the quarterly dividend due Sept. 15 on the $5 cumulative preferred stock.

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Ross Gear & Tool Co., Lafayette, Ind., has declared quarterly dividend of 30 cents a share placing the issue on a $1.20 annual basis, compared with $2 previously.

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Cambria Iron Co., Johnstown, Pa., lease of which is held by the Bethlehem Steel Co., Bethlehem, Pa., has declared the regular quarterly dividend of $1, payable Oct. 1 to record Sept. 15.

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Holland Furnace Co., Holland, Mich., reports net profit of $713,080, after all charges, including federal taxes, in the year ended June 30. These earnings equal $1.43 a share on the 432,194 common shares, after allowance for preferred dividends.

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Simmons Co., Chicago, manufacturer of metal beds and furniture, reports August sales for itself and subsidiaries 27.2 per cent under August, 1930. Sales in August, this year, were $2,617,925, compared with $3,598,158 in August, 1930. For the first eight months, sales aggregated $20,253,489, a decline of 27 per cent under last year.

U. S. Steel Orders Off Again; Trend of Statistics Mixed

UNFILLED tonnage of the United States Steel Corp. in August, when the Corporation was operating at a little over 30 per cent, declined 235,359 tons. Last August, when the Corporation was averaging about 60 per cent, its bookings went down 441,851 tons. In August, 1929, the shrinkage in bookings was 429,966 tons.

As of Aug. 31, the unfilled tonnage of the Corporation was 3,169,457, or the lowest for any month since Sept. 30, 1927, when orders totaled only 3,148,113 tons. As of Aug. 31, 1930, the backlog of the Corporation stood at 3,580,204 tons.

The logic of the August showing is that new business of the Corporation fell off rapidly, more rapidly than steelmaking capacity could be dropped economically. A comparison of recent months follows:

1930			
Jan. 31	4,468,710	51,517+	1.20+
Feb. 28	4,479,748	11,038+	0.25+
Mar. 31	4,570,653	90,905+	2.03+
April 30	4,354,220	216,433—	4.73—
May 31	4,059,227	294,993—	6.78—
June 30	3,968,064	91,163—	2.24—
July 31	4,022,055	53,991+	1.36+
Aug. 31	3,580,204	441,851—	10.9 —
Sept. 30	3,424,338	155,866—	4.35—
Oct. 31	3,481,763	57,425+	1.68+
Nov. 30	3,639,636	157,873+	4.53+
Dec. 31	3,943,596	303,960+	8.35+
1931			
Jan. 31	4,132,351	188,755+	4.78+
Feb. 28	3,965,194	167,157—	4.04—
Mar. 31	3,995,330	30,136+	0.73+
Apr. 30	3,897,729	97,601—	2.24—
May 31	3,620,452	277,277—	7.11—
June 30	3,479,323	141,129—	3.89—
July 31	3,404,816	74,507—	2.14—
Aug. 31	3,169,457	235,359—	6.91—

Tin Plate Output Falls But Exports Gain

Output of tin plate in the United States in August was 110,000 long tons, compared with 141,500 tons in July and 133,500 tons in August, 1930. Exports in July were 8790 tons, the largest of any month this year except April but only half so large as a year ago.

Consumption of tin in the manufacture of tin plate in August declined to 1700 tons, compared with 2000 tons for the earlier months of 1931.

Locomotive Shipments Total Only Three in August

At a low for some years, railroad locomotives shipped domestically totaled only three units in August. Some compensation was derived from increased foreign shipments, in fact sufficient to make the month comparable to July. Shipments are less than one-fourth of the same time of 1930. Unfilled orders also diminished in August, as department of commerce figures show:

	Shipments		Unfilled Orders	
1930	Domestic	Foreign	Domestic	Foreign
Aug.	73	4	229	5
8 mo.	537	19	.....	.....
Sept.	65	.....	169	5
Oct.	50	.....	127	5
Nov.	43	.....	88	5
Dec.	44	5	104	.....
Year	739	24	.....	.....
1931				
Jan.	16	.....	90	1
Feb.	15	.....	92	11
March	10	.....	83	12
April	14	1	69	11
May	26	.....	47	11
June	19	.....	84	11
July	12	1	75	11
Aug.	3	13	73	1
8 mo.	115	12	.....	.....

Three-Month Decline Ends In Enameled Sheet Ware

Enameled sheet metal ware shipments gained in August to 246,858 dozen, due largely to increases in the gray and colored classification, according to department of commerce figures which follow:

In Dozens

1930	Total	White	Gray and Colored
July	213,420	70,718	142,702
7 mo.	2,075,762	756,277	1,319,485
Aug.	309,645	89,259	220,386
Sept.	297,622	97,262	200,360
Oct.	329,337	107,553	221,784
Nov.	263,365	79,719	183,646
Dec.	250,568	70,554	180,014
Year	3,526,299	1,200,624	2,325,675
1931			
Jan.	267,232	84,917	182,315
Feb.	289,205	96,812	192,393
March	312,916	103,375	209,541
April	281,339	99,218	182,121
May	264,953	106,091	158,862
June	232,672	81,588	151,084
July	246,858	83,483	163,375
7 mo.	1,895,175	655,484	1,239,691

Steel Barrel Statistics Encouraging for July

Both shipments and output of steel barrels gained in July over June and were the third highest monthly figure of 1931 to date. However, operations ratio to capacity continues discouraging at 39.5 per cent in July. The following is based on department of commerce reports:

1930	Production	Shipments	Unfilled orders within 30 days
July	612,313	621,091	311,630
7 mo.	4,791,179	4,790,608	.....
Aug.	553,842	552,265	237,745
Sept.	564,927	565,204	253,745
Oct.	616,121	619,558	275,778
Nov.	497,539	500,409	230,960
Dec.	412,283	406,327	188,902
Year	7,435,891	7,434,371	.....
1931			
Jan.	421,814	427,622	210,416
Feb.	450,134	449,485	231,738
March	550,583	554,332	242,626
April	591,399	600,566	253,622
May	610,788	618,801	248,138
June*	552,955	549,781	239,290
July	563,479	564,061	238,258
7 mo.	3,741,152	3,764,648	.....

*Revised.

Galvanized Ware Output Bettered in July

July's output of galvanized pails and tubs picked up from 1931's low in June. Shipments also were improved, according to department of commerce tabulations:

In Dozens

	Pails and Tubs		Other Ware
1930	Production	Shipments	Production
July	91,879	104,096	42,056
7 mo.	825,129	814,146	276,821
Aug.	103,050	103,354	46,730
Sept.	103,177	116,875	38,218
Oct.	130,906	115,185	40,084
Nov.	60,798	68,330	16,061
Dec.	87,140	68,898	21,657
Year	1,309,097	1,307,928	440,981
1931			
Jan.	103,677	133,977	23,716
Feb.	132,781	120,723	34,347
March	146,438	144,637	31,542
April	143,258	140,080	34,929
May	121,413	122,072	28,390
June	92,460	90,747	26,304
July	103,345	114,134	26,970
7 mo.	844,212	870,346	206,198

Stoker Sales Hold Well To June's High Mark

In point of numbers, July mechanical stokers' sales held well to the June level as the department of commerce shows:

1930	Stokers sold	Fire tube boilers	Water tube boilers
July	150	83	67
7 mo.	720	335	385
August	115	61	54
September	128	71	57
October	92	46	46
November	71	41	30
December	53	35	18
Year	1,179	589	590
1931			
January	85	40	45
February	66	37	29
March	63	27	36
April	65	32	33
May	80	29	51
June	111	55	56
July	101	58	43
7 mo.	571	278	293

Industrial Men in the Day's News

Earle W. Brown, General Superintendent, National Tube Co., Lorain, O.

BORN and educated in New England, he chose the territory west of the Allegheny mountains for his life work.

STARTING in a minor position at Lorain, O., blast furnace in 1903, he has risen to the general superintendency of a plant normally employing 10,000 men.

HE has watched the metamorphosis of a moderate size street railway rail plant into a mill able to convert iron ore into finished tubular products.

THE entire business life of Earle W. Brown, who early this year was appointed general superintendent at Lorain, O., for National Tube Co., Pittsburgh, has been spent in that plant.

Born in South Coventry, Conn., he spent the early years of his life at East Hampton, Conn., and received his school and college training entirely within his native state, graduating from Sheffield scientific school, Yale university, in 1902. After adding a year of special post graduate work, the young engineer left his native New England to seek a career in the iron and steel districts west of the Alleghenies.

He stopped at Lorain, where the steel works built by Tom L. Johnson, of Cleveland street railway fame, was growing rapidly under the new ownership of the National Tube Co. Here the name of Earle W. Brown was placed on the payroll in 1903, when he landed his first job at the blast furnaces. Starting at the bottom of the ladder, he worked his way upward to the position of blower, and in 1905 was promoted to assistant blast furnace superintendent.

During the following 13 years the organization functioned practically without change in personnel, and in 1918 he was appointed superintendent of blast furnaces. Five years later, in 1923, he was given supervision of docks, coke ovens and by-product plant, in addition to blast furnaces. He held this position until January, 1929, when he was promoted to the newly-created position of assistant general superintendent. On Jan. 1, 1931, Mr. Brown succeeded to the general superintendency of this important unit of the National Tube Co., which normally employs about 10,000 workmen.

There has been much new construction, and many major improvements have been built at Lorain works since 1903, and Mr. Brown has had the opportunity to witness this growth and to have a part in the development by which a modest sized plant for rolling street railway rails was transformed into a giant pipe mill which has all the facilities to convert iron ore to finished tubular goods.

Mr. Brown is a member of the American Iron and Steel institute, and other organizations and clubs. He is fond of all outdoor sports, particularly golf, and makes radio engineering his hobby.

CHARLES P. MILLS, recently director of chrome alloy department, General Alloys Co., Boston, has resigned to become chief engineer of Empire Steel Castings Inc., Reading, Pa. Mr. Mills is an authority on heat and corrosion resisting chrome iron and chrome nickel castings and for many years was chief engineer of the Duraloy Co., Pittsburgh. He was graduated from the engineering department, University of Pennsylvania, and after spending four years in the Panama canal territory, he became associated with Fort Pitt Bridge Co., Pittsburgh, as designing and sales engineer. He first became interested in alloys in 1921 and since has actively followed this line. He is a member of American Institute of Mining and Metallurgical Engineers, American Petroleum institute and Engineers Society of Western Pennsylvania.

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A. R. Johnson, formerly manager of sales of sheets and tinplate, Republic Steel Corp., Youngstown, O., has resigned and has been appointed assistant vice president, Weirton Steel Co., Weirton, W. Va. Mr. Johnson formerly was with the tin plate sales department of the former Trumbull Steel Co., Warren, O.

The sheet and strip sales divisions of the Republic corporation have been combined under the management of Fred H. Loomis, formerly manager of its strip division.

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J. N. Fleming has been appointed purchasing agent, American Steel &

Wire Co. of New Jersey, Cleveland, subsidiary of the United States Steel Corp. He succeeds E. E. Stone, who retired Sept. 12 as general purchasing agent.

F. E. Chesney, Rockefeller building, Cleveland, has been appointed assistant purchasing agent, and D. C. MacDonald has been made district purchasing agent with headquarters at 94 Grove street, Worcester, Mass.

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Jack Byrnes, purchasing agent, Cleveland division, Fisher Body Corp., division of General Motors Corp., has resigned.

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R. H. Wilt, formerly director of purchases, Cleveland Tractor Co., Cleveland, is now affiliated with the company's sales organization.

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Lloyd Jones, manager of the Salem, O., works of E. W. Bliss Co., Brooklyn, N. Y., rolling mill equipment builders, sailed recently for Europe on a business trip.

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J. F. Welborn, chairman of the board, Colorado Fuel & Iron Co., Denver, has been made a member of a committee of Denver stockholders of Continental Shares Inc.

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R. B. Kite has been appointed manager of the Philadelphia territory for Robbins & Myers Inc., Springfield, O., hoist and crane division. His headquarters will be at 401 North Broad street, Philadelphia.

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George H. Hannum, who recently became general manager of Heintz Mfg. Co., Philadelphia, automobile bodies and other pressed metal products, was formerly president of Oakland Motor Car Co., and later was with Buick Motor Co. At one time he was connected with the I. P. Morris division, William Cramp & Sons Ship & Engine Building Co., Philadelphia.

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Ernest L. Richter, industrial engineer, formerly with Trundle Engineering Co., Cleveland, and later with National Lamp Works of General Electric Co., Cleveland, has organized Richter Engineers, 1117 Schofield building, Cleveland. Associated with Mr. Richter is Kenneth W. Reed, industrial and mechanical engineer, formerly consulting engineer for the Warner & Swasey Co., Cleveland, and other prominent industries in various parts of the United States.

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C. B. Coldwell, formerly located in Chicago, has been transferred to the Fort Worth Tex., office, 1309 Aviation building, of International-Stacey Corp. He will have charge of sales of the Roots-Connersville-Wilbraham division line of blowers, meters, gas pumps and exhausters, Hayton centrifugal pumps and blowers, Stacey Bros. Gas Construction division's telescopic and Stacey-Klonne dry seal low pressure gas holders and Stacey high pressure gas holders.

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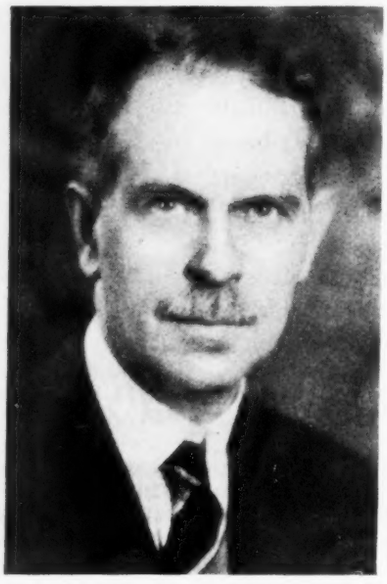
George F. Fuller, former president of Wyman-Gordon Co., Worcester, Mass., has been named chairman of the board, and Harry G. Stoddard, former vice president, succeeds him as president. F. A. Ingalls was re-elected vice president; C. C. Winn, formerly assistant treasurer, was elected treasurer at Worcester, and F. P. Miller, formerly cashier at Harvey, Ill., was elected assistant treasurer at that works.

Executive appointments follow: S. M. Havens, formerly work manager at Harvey, now is general manager there; R. M. Powell, formerly sales agent at Detroit, now is general sales manager there; J. D. Sutherland, formerly general sales agent, now is assistant to the president; H. F. Wood, formerly assistant works manager, now is works manager, Ingalls Shepard division; J. H. Nelson was reappointed works manager, Worcester division; and F. E. Wellington is district sales manager, Worcester division.



Charles P. Mills

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Chester M. Wilcox, founder and manager of the Wilcox laboratories, Charlotte, Mich., which were merged several years ago with Sterling Mfg. Co., Cleveland, has been promoted to general sales manager of the Sterling organization.

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J. E. Caster and R. E. Field have been appointed to manage the newly-opened Cleveland and Chicago offices, respectively, of Cincinnati Milling Machine Co. & Cincinnati Grinders Inc. Sales Co., Cincinnati. After attending Purdue university, Mr. Caster became affiliated as draftsman and machinist with Cincinnati Acme Tool Co., Cincinnati. In 1916 he went with Cincinnati Milling Machine Co. as tool designer, and engineering specialist. For five years he covered the Cleveland, Buffalo, Pittsburgh, Rochester and Syracuse, N. Y., territories as special milling machine engineering representative. In 1925 he was transferred to the development and sales work on the company's centerless grinders and in 1928 was named assistant sales manager of Cincinnati Grinders Inc.

Associated with Mr. Caster in the Cleveland office at 5005 Euclid avenue, Euclid-Windsor building, will be J. G. Moohl, whose appointment was noted in STEEL last week and D. O. Lawless and C. H. Shaefer.

After attending the University of Cincinnati, taking a co-operative engineering course, Mr. Field, manager of the Chicago office, engaged in power engineering. Upon his enlistment in 1917 he was assigned to the chief engineer's office of the American expeditionary forces. Following the war he became identified with Cincinnati Milling Machine Co., working in the Chicago, Cincinnati and Pacific Coast territories as sales engineer for 12 years. Associated with him in the Chicago office, Chicago Daily News building, 400 West Madison street, will be W. F. Stegner, P. C. Hewett, C. M. Clark, R. E. Risley, A. F. Knight and E. Sticksel.

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Otto Nonnenbruch, for the past four years chief engineer of diesel engine department of I. P. Morris & De La Vergne Inc., Philadelphia, and prior to that with Worthington Pump & Machinery Corp., Harrison, N. J., in various capacities for nine years, has returned to the Worthington organization as special sales representative at Buffalo.

J. B. Allen, formerly president of Allen Engineering Co., Bridgeport, Conn., and prior to that with Sperry Gyroscope Co., Brooklyn, N. Y., now is special marine representative of the Worthington company at Harrison.

H. G. Wood, formerly assistant manager of the New England division, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has been made electrical engineer for Worthington.

E. M. Paullin Jr., associated for some time with the New York office of General Electric Co., as synchronous motor specialist, now is electrical sales engineer for Worthington at its Cincinnati plant.

John T. Clancy, assistant manager, Buffalo works sales division, has transferred his headquarters from Buffalo to Harrison.

E. W. Hammond, formerly located at Buffalo, now is in Los Angeles as special representative of diesel and gas engine sales on the Pacific coast for Worthington.

A. M. Boehm, formerly in the

sales department, Buffalo works, now is in Kansas City as diesel and gas engine specialist.

Joseph F. Hecking, formerly with the diesel engine sales division in New York, now is in the diesel and gas engine sales division at Buffalo.

William J. Daly, assistant manager, Cincinnati works sales division, has been assigned to Pittsburgh on special sales work.

G. A. Herrmann, formerly sales engineer at Chicago, now is acting district manager at St. Paul.

W. R. Kennedy, sales engineer at Pittsburgh, now is acting district manager at Kansas City.

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Fritz Thyssen, German steel leader, will speak Oct. 21 at the friendship dinner in the new Waldorf-Astoria hotel, New York, which will mark the close of the eighth conference of major industries. The dinner will be under the joint auspices of Columbia university, the chamber of commerce of the state of New York, the Merchants Association of New York and the Institute of American Meat Packers. Members of the board of honorary chairmen are: Thomas A. Edison, Henry Ford, Cyrus H. K. Curtis, Julius Rosenwald, Owen D. Young, Orville Wright, Adolph S. Ochs, Thomas W. Lamont, George Eastman, Charles M. Schwab, Harvey S. Firestone.

Obituaries

HARRY P. DAVIS, 63, vice president in charge of manufacturing and engineering, and director of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., died at his home in Pittsburgh, Sept. 10. He was graduated from Worcester Polytechnical institute in 1890 with the degree of mechanical engineer and entered the employ of the Westinghouse company in 1891. He was made manager of engineering in 1904, and five years later became assistant to the first vice president. In 1910 he was appointed vice president in charge of manufacturing and engineering. Dr. Davis is best known as being partly responsible for the first successful vocal radio broadcast in 1919 and was prominent in the radio industry. During the World war Mr. Davis had complete charge of the Westinghouse company's munitions contracts.

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C. W. Prichard, president, C. W. Prichard Inc., Newark, N. J., used machinery dealer, died in that city, Sept. 2.

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F. J. Glennon, 34, vice president and general sales manager of Aluminum Industries Inc., Cincinnati, died there recently. He formerly was director of National Standard Parts association. A native of Portland, Oreg., he joined Aluminum Industries Inc. in 1920 as western field representative.

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James A. Dawes, identified in the sale of hoops and bands with Pittsburgh Steel Co., Pittsburgh, for about 32 years, died Sept 4.

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William J. Gleasner, 56, president of Gleasner Compressed Air & Supply & Equipment Co., Buffalo, died as the result of injuries sustained in a fall while inspecting a job at the plant of Farrar & Trefts that city.

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John H. Staples, 58, owner of J. H. Staples Foundry Co., Mt. Vernon, Ind., died Sept. 5. He had been foreman for Keck-Gonnerman Co., Mt. Vernon, for several years but about eight or nine years ago began to operate his own foundry.

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Clarence W. Aird, 57, organizer of the Brantford Oven & Rack Co. Ltd., Brantford, Ont., from which he retired as manager in 1927 on account of ill health, died Sept. 9. Born in Toronto, Ont., he was graduated from the University of Michigan in 1896. For some years he was engaged in manufacturing in Chicago before locating in Brantford 19 years ago. He was a prominent member of the Brantford board of trade.

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Charles R. Day, who until he retired about two years ago, was general manager of Pittsburgh Forge & Iron Co., Pittsburgh, died Sept. 5 at Ambridge, Pa. He was born in Pittsburgh in 1872 but spent his early life in Philadelphia. He entered the employ of Midvale Steel & Ordnance Co., Nicetown, Philadelphia, where he obtained a broad knowledge of metallurgy. In 1909 he became affiliated with the Pittsburgh Forge & Iron Co., as metallurgical engineer, and subsequently became general manager.

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William C. Wright, foundry consultant of National Founders association, Chicago, for the past 21 years, died in that city Sept. 9. Mr. Wright learned the molding trade at the foundry of Walter A. Wood Mowing & Reaping Machine Co., Hoosick Falls, N. Y., where he advanced to foreman. Then for a number of years he was identified with Draper Co., Hopedale, Mass., as foundry superintendent, and later served in a similar capacity with Rensselaer Valve Co., Troy, N. Y., and Kennedy Valve Mfg. Co., Elmira, N. Y. Prior to taking up foundry work, Mr. Wright studied law and was admitted to the New York state bar.

Otis Books Castings

Otis Elevator Co., New York, has booked 300 tons of steel castings for sleeves and pile points, in connection with the construction of the West Side elevated highway, between Twenty-second and Thirty-eighth streets, New York.

The Business Week In Washington

ON SEPT. 21 oral argumemnt will begin before the interstate commerce commission in connection with the 15 per cent freight rate increase application. No one will even guess how long the argument will take.

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It is estimated that the postal deficit for this present fiscal year will amount to $150,000,000.

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July automobile financing dropped for both new and used cars. Thirty thousand fewer cars were financed in July than in June, according to the bureau of the census.

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Senator Reed, of Pennsylvania, has proposed a retail sales tax of one half of 1 per cent which he claims would produce some two billion dollars.

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The American Federation of Labor has announced that it is unalterably opposed to any sales tax and that "it will exercise all influence at its command to prevent this enactment of sales tax legislation."

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Liaison officers between the states and the federal government have been announced for various states by Walter S. Gifford, director of the President's organization on unemployment relief.

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The bureau of immigration announces that during July 3174 immigrants came into this country compared with 3534 in June, a decline of 10.2 per cent. The monthly average for the last fiscal year was 8095.

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Commerce department announces that ship construction in American yards dropped off during September. On Aug. 1, 105 vessels were being built, while on Sept. 1, 100 vessels were being built.

Austin Books New Work

Contracts for structures representing an investment of nearly $400,000 have been placed with the Austin Co., Cleveland, within the past week. The work is well scattered over the United States and will be under supervision of district offices.

MIRRORS of MOTORDOM

DETROIT

FROM spring on, Detroit discounted August as the low point of the summer in automobile production and looked to September to inaugurate a fall rise. August did prove to be the poorest production month since January, but greatly bettered the expectation for it by turning out an estimated 180,000 to 190,000 units, or only 15 per cent below July.

The nearer September approached the dimmer its outlook became. On the one hand, August displayed unexpected strength. On the other, many manufacturers, probably constituting a majority of production, revised their plans and scheduled model changes early in the fourth quarter instead of just before the January shows.

September, as a result, fell into a trough. Actual output of cars and trucks in the first half of the month sagged below the first half of August. Whether the last half of the month can overcome this handicap is moot.

Now Count on October

It is apparent that some direly pessimistic forecasts for September will not be fulfilled, neither will it be the virile month it originally promised. At this time it would appear that September production will not vary much from August, but hopes of an increase are being abandoned. If the trend is not reversed, a loss may be shown.

For October the situation appears spotty, but with a predominance of favorable indicators. By next month, some important manufacturers, including Chevrolet and Buick, will have passed their inventory time and be swinging into production of their 1932 lines. Many jobbing foundries in the Detroit district are working night and day on new body dies, a condition which usually foreruns steel orders for new models by 30 to 60 days.

For some producers, releases of finished steel products for October shipment are somewhat improved over September, yet some steel interests find it difficult to get specifications and can discern no immediate better prospect. Considering materials as a whole, it would seem assured that the movement into Detroit in October will be somewhat higher than in September.

New Models Plentiful

Even including September as a poor month, output of cars and trucks in the closing four months of 1931 is likely to equal the same months of 1930, when 664,000 units were assembled. An average of 165,000 units a month would turn the trick, and this seems possible.

For one thing, to stock dealers' floors and warehouses with new models will absorb many thousands of cars. To cite only a few of the manufacturers who will have new models coming off the line between now and January show time, there are Ford, Chevrolet, Oakland, Oldsmobile, Buick, Pontiac, Cadillac, LaSalle, Hudson, Essex, Graham, Studebaker, Auburn.

In the past week a halting tendency in regard to new models is apparent, and while many new lines will appear earlier than the original intention, the rush has slowed down. For one thing, this is due to failure of the general business situation to improve and to the slump in retail sales of automobiles in August.

Still another reason, of recent development, is the probability of a wage rate reduction in the steel industry. Automotive buyers in the past have generally been the beneficiaries of lower costs of making steel, and since the f.o.b. Detroit quotation on automobiles is determined by the cost of materials when the models are put in production, there may be some delay in order to make certain that steel prices are at bottom for the immediate period.

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Ford's schedule of 50,000 units for September is four-fifths commercial models, or 40,000 units. These will all be from the present Model A specifications. Sometime in October the changeover to the revised Model A will be effected.

Ford dealers have been advised that a show car of the new series may be displayed the day after Thanksgiving and that orders can be filled about the turn of the year. This was affirmed by a Ford Dearborn official recently.

In the meantime, for these 50,000 current model units, Ford is ordering no steel with the exception of a few comparatively small fill-in specifications.

Chevrolet Begins Inventory

Chevrolet continues in production, but last Monday started taking inventory by departments. Those divisions manufacturing a part taking the longest to produce went down first, thus giving a co-ordinated effect to the entire process. The new Chevrolet sheet specifications indicate a heavier car. It is fairly certain the front-end of the Chevrolet will remain virtually unchanged.

Buick is said to be a convert to the new V-type radiator shell for the 1932 model. Difficult die problems were involved, with consequent revision in the hood. The radiator shell design calls for mild steel, chromium plated. The Buick will remain an eight.

For the third successive week the schedule of Plymouth has been curtailed, probably indicating that dealers are completely stocked, the honeymoon of the new model is over and sales are finding their level.

Plymouth, still working 5½ days a week, is scheduling 1000 units a day, compared with 1200 units daily a week ago. Its ratio of output to capacity is greater now than its competitors. On a weekly basis, the three leaders in the low-price field compare: Chevrolet 14,000, Ford 10,000, Plymouth 5000.

Hudson-Essex, which like Buick will go to the V-type radiator shell and will revise its front fender design, has been operating, on the average, about 1½ days per week, at about 500 units daily.

Considering the automobile industry as a whole, those manufacturers who are operating at unchanged rates, and their weekly output, are: Auburn-Cord 500, Cadillac-LaSalle 224, Chevrolet 14,000, Chrysler 625, DeSoto 575, DeVaux-Hall 250, Ford 11,000, Hudson-Essex 750, Hupp 225, Oakland-Pontiac 1100, Oldsmobile 750, Packard 500, Pierce Arrow 150, Studebaker 1200, Willys-Overland 1200, Reo 200.

Nash, down to a 3-day week, is averaging 125 units daily, about half its rate of a week ago. Dodge also has slumped, from 1300 weekly to 1000, and is reported to have dies ready for its new line. Graham has increased its rate slightly, going from 300 weekly to 400.

Some G. M. Steel Awarded

Ford is building a large new polishing machine at Dearborn to cost over $150,000. The company has two others of smaller size at the same plant and two at Flat Rock, Mich. . . . Aside from its newly acquired auto frame order, Murray has taken several other sizable contracts and in addition is installing equipment for the fabrication of corrosion-resistant steel. . . . Budd is working intensively on the automotive brake problem, receiving its chief interest from Ford and Chrysler. . . . Oakland has just had a personnel revision, with a large number of employes laid off. . . . Forty-two per cent of the 236,795 cars financed in July, according to the department of commerce, were new cars and 54 per cent were used models, with 4 per cent unclassified. . . . General Motors placed its strip, sheet and bar needs for fourth quarter for its Buick and Chevrolet units some time ago. From some General Motors' subsidiaries no sign of an inquiry for steel has appeared. . . . Hudson-Essex let more than 40 men in its production department go last week.

Aetna-Standard Engineering Co., Youngstown, O., builder of rolling mill machinery, plans to increase production at its plant at Ellwood City, Pa., and is recalling several hundred workmen on account of the enlarged operating schedule.

Here and There in Industry

FORT PITT FLASK EQUIPMENT CO. has been organized with offices in the Oliver building, Pittsburgh, to engineer foundry flasks. Formation of the company follows several years practical development in the plant of the Fort Pitt Steel Casting Co., McKeesport, Pa., and a number of other foundries making a wide variety of work. C. H. Curry has been made president, H. J. Koch vice president, and C. S. Koch, treasurer. In addition to selling flasks manufactured at the plant of the Fort Pitt Steel Casting Co. the sales plan contemplates a working arrangement with established and recognized steel foundries in localities where the time element and transportation considerations serve to promote this arrangement. The company plans to work with foundry engineers, molding machine manufacturers and handling equipment builders in meeting individual requirements, not only in steel but also in other types of flasks. In addition to the officers, the new company will have the services of C. W. Miller as engineer, J. C. Peirce in development and sales work, W. R. Beck in sales and engineering and Leo B. Callahan as assistant to H. J. Koch. Services of a number of members of the Fort Pitt Steel Casting Co. organization will also be available to the new company.

□ □ □

Bingham & Taylor Corp., Buffalo, has become a member of the Gray Iron institute Inc., Cleveland.

□ □ □

Fuller Lehigh Co., 85 Liberty street, New York, has moved its Boston office from 80 to 49 Federal street. H. H. Leathers continues as district sales manager.

□ □ □

N. S. Monroe & Sons, Decatur, Ill., road machinery builders, have been reorganized and incorporated under the same name, following the death of A. J. Monroe.

□ □ □

Dittmer Gear & Mfg. Co., Lockport, N. Y., has resumed operations on a full time schedule. The plant has been in partial operation since Aug. 29, for the annual midsummer shutdown.

□ □ □

Allis-Chalmers Mfg. Co., Milwaukee, is building a 5-story addition to its tractor division administration building. The addition will cost about $125,000, and has been made necessary by acquisition of the business of Advance-Rumely Co., LaPorte, Ind.

□ □ □

T. L. Smith Co., Milwaukee, division of the National Equipment Corp., has taken an order for four concrete mixer units for delivery to the Boulder Dam project by Dec. 1 and a duplicate installation as work progresses. The mixers will be of special design, built entirely of alloy steel to withstand severe service. Each is of four cubic yards capacity.

□ □ □

Mullins Mfg. Co., Salem, O., builder of steel boats, has started production on an order for close to $1,000,000 worth of automobile body parts for two automobile builders. About 200 men will be employed to make dies and tools for this order in addition to the 1000 already employed.

□ □ □

David H. Smith & Sons, Inc. Brooklyn, N. Y., has acquired the Waters Arc Welding Corp., 587 Eleventh avenue, New York. The welder formerly manufactured by the latter will be produced in future by the Smith company and a line of welding rods will be distributed. Dudley J. Smith is vice president in charge of sales, William H. Wilson sales manager for the welding division, J. Harry Petty in charge of purchases, and Charles V. Featherstone supervisor of construction.

□ □ □

Peterson Tool & Die Co. has been organized at Milwaukee to establish a shop in the plant of the Welded Products Co. in Cudahy, suburb of Milwaukee, for the manufacture of tools, dies, jigs, fixtures and special machinery. Henry Peterson, head of the company, formerly conducted a shop in Marinette, Wis., and has been engaged in the business for 20 years. The new shop opens with four lathes, seven drill presses, three milling machines, two planers, five shapers, five grinders, a boring bar and other items. No important purchases of additional equipment will be necessary at present.

□ □ □

Sterling Wheelbarrow Co., West Allis, Wis., manufacturer of steel wheelbarrows, foundry flasks and similar products, is adding several new lines. It is about to start the manufacture of core plates and bottom boards and the flask line is to be extended to include larger sizes. Another new product is a runway support to attach to concrete forms to carry planks for a runway.

EDITORIAL

How the Steel Dollar Is Being Liquidated

WHEN the history of the current depression finally is written, students of economics will marvel at the many changes in business sentiment therein revealed. It will be found that the path from the reckless optimism of 1929 to the gloom of 1931 is marked by a succession of reversals in the thinking of industrial leaders.

In the earlier stages of the slump, idealism was rampant. Many plans for artificially stimulating industry were tried.

It is idle to contemplate how successful these measures would have proved had the depression been of short duration. The fact is that numerous complications—drought, foreign political and financial difficulties, and the sheer weight of inflation in practically all domestic activities—carried the depression to greater depths and extended it over a longer period than had been anticipated by even the most pessimistic.

The collapse late in March of the encouraging upturn which started in January of this year and the tardiness of the expected fall upturn in September were body blows to business sentiment. The enthusiasm for idealistic measures in connection with the present crisis has all but disappeared. In its place is an eagerness to deal openly with realities.

Business, Now Facing Realities, Demands Industry Be Purged of Inflation

In the steel industry there is a growing conviction that the best and quickest way out of present difficulties lies in the prompt liquidation of every inflated item. The reports of several steel companies show that in 1930 the average dollar of gross income was spent approximately as follows:

	Cents
Operating expense, exclusive of labor	51.5
Labor chargeable to operations	31.1
Depreciation, obsolescence, etc.	5.0
Taxes	4.0
Net income	8.4
	100.0

Operating expenses, which in 1930 accounted for more than 82 cents of the steel dollar, have been reduced drastically by the majority of companies. With few exceptions the materials entering into the production of steel are down to practically a rock bottom level of prices. Transportation—an item largely beyond the control of the steel industry—still is inflated and if the interstate commerce commission grants an increase in freight rates, this item will be out of line still further. Other operating expenses, including fuel, supplies, ordinary repairs to equipment, etc., already have been cut.

In the matter of wages, amounting in 1930 to 31.1 cents of each dollar of gross revenue, the steel industry has made reductions much more extensive than is realized generally. Salary cuts by practically all companies have extended from the top officials down to low salaried office employes. The amounts paid to workers on a tonnage or piece rate basis already have been liquidated. The only remaining item is that represented by wages paid on an hourly basis and the amount involved has been reduced tremendously by the diminished number of hours.

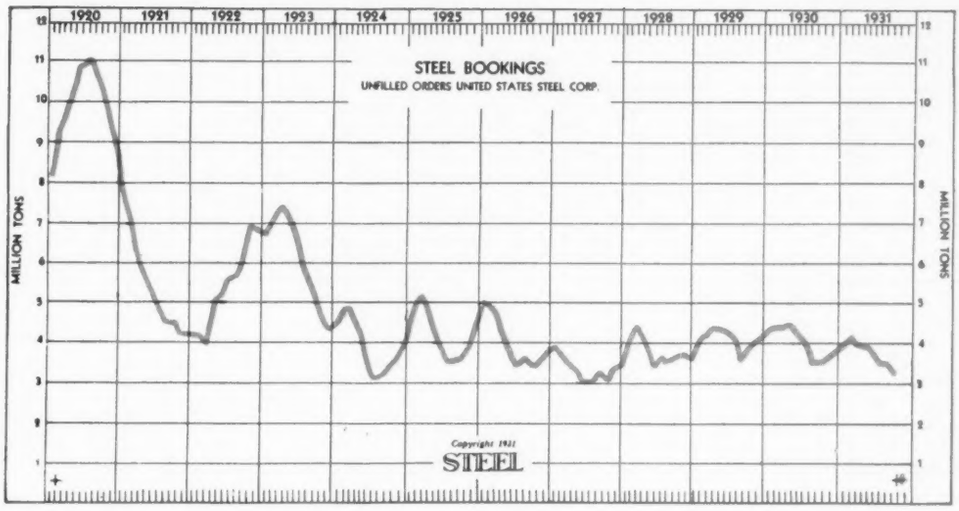
Freight Rates Out of Line; Wages Already Have Been Heavily Liquidated

The directors of most of the steel companies now are debating whether or not to cut these wage rates. It is no secret that in many companies the decision is being withheld until the United States Steel Corp. announces its policy. The effect of a wage cut in savings to steel companies is less important than the psychological effect on industry as a whole—including particularly the consumers of steel. More important, perhaps, than a decision of wages, is a clarification of the wage situation so that the industrial world at large may know the extent to which labor expense already has been liquidated.

The items of depreciation and taxes are largely beyond the direct control of steel executives. The amount left for net income—8.4 cents in 1930—already has been reduced to the extent that dividends have been scaled down or omitted. The only remaining opportunity for economy lies in the elimination or otherwise satisfactory disposition of unprofitable plant and equipment. The process of abandoning such properties has been hastened in recent years, particularly by the larger companies. Such additional efforts as may be taken in this direction cannot hope to produce quick results.

Steel's dollar has been liquidated more extensively than the railroad dollar, the automobile dollar and the dollars of many other industries!

THE BUSINESS TREND



1930

Thousand Tons	
Aug.	3,580
July	4,022
June	3,968
May	4,059
April	4,354

1931

Thousand Tons	
Aug.	3,169
July	3,404
June	3,479
May	3,620

Tardiness of Fall Upturn Prolongs Uncertainty

AMERICAN business now is convinced that salvation in the present situation will come primarily through the successful efforts of each individual company in putting its house in order promptly. Strange as it may seem, the industrial world—looking for an example to follow—cannot do better than to study the methods employed by England's coalition government in balancing its budget.

The measures announced last Thursday by Philip Snowden seem unduly harsh to the American mind. An income tax of 25 per cent, as proposed for Great Britain, would arouse consternation if even suggested in this country. Yet the budget pill, bitter as it is, probably will be swallowed by the British people.

Britain's Drastic Remedy Is Sample of What Industry Must Do

Britain's example will have a beneficial effect throughout the world. In the United States it ought to convince everyone of the futility of trying to avoid complete liquidation of costs that are out of line. Few companies in this country are being called upon to make the sacrifices poor England is making in order to put its business in black ink. Yet in some quarters there still is a noticeable tendency among industrial concerns to withhold economies which sooner or later will become inevitable. Business sentiment is rapidly assuming the position that the sooner business is stripped of the last vestige of inflation the sooner improvement will set in.

This feeling is intensified by the tardiness of the expected fall upturn. Mid-September is at hand and no definite sign of market improvement has appeared. Steelmaking operations remain in the low thirties. Production of pig iron and steel ingots in August was 12 and 8 per cent, respectively, below July totals. Unfilled orders for the United States Steel Corp. as of Aug. 31 were lower. Automobile production in September will do well to exceed August figures, whereas earlier estimates indicated a moderate gain in the ninth month.

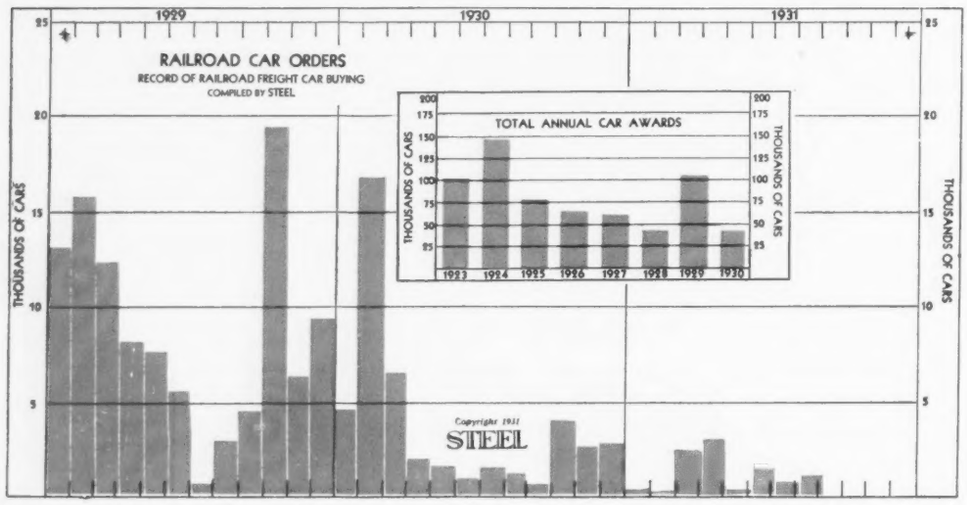
Disappointing First Half of September Has Sobering Effect on Business

These developments are prolonging the period of uncertainty. Business men who were quite sure that Labor day would mark the beginning of an upturn now are looking to October for good news.

A few favorabe signs appear in the current statistics. Car loadings have increased for three consecutive weeks. Freight car orders in August were far ahead of those in July and almost came up to the August, 1930, total. Business failures reported by R. G. Dun & Co. in August were lower in number and in amount of liabilities than in July. Crude oil production continues to decline, due to arbitrary restriction.

Commodity prices are almost stationary. The weekly indices are at a standstill or are fluctuating so slightly that no trend is discernible. STEEL's composite of 14 iron and steel prices has remained at $31.04 for four consecutive weeks.

In brief, it may be said that the dull, inactive situation which characterized business during July and August has been carried over into the first half of September.



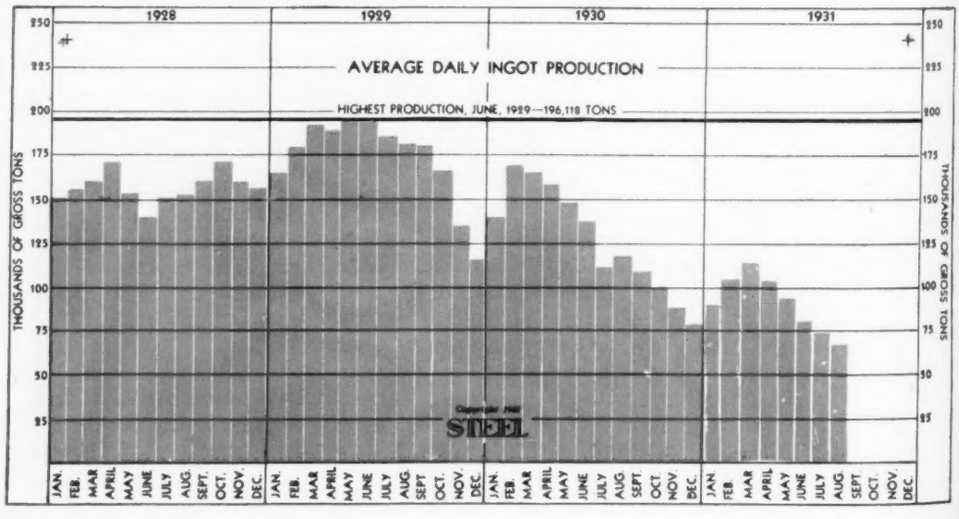
	1931	1930
Aug.	1,104	1,111
July	367	1,389
June	1,910	998
May	20	1,392
April	2,798	1,997
March	2,166	6,118
February	50	17,027

Car Awards Almost Equal Those of Corresponding Month of 1930

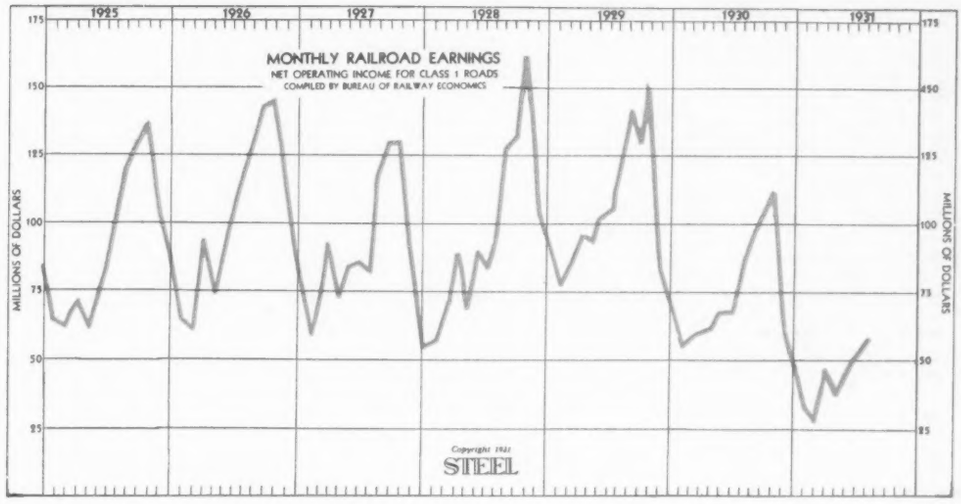
Builders of railroad freight cars booked in August 1104 cars. In July only 367 cars were placed, and in June, 1910. Awards for the month were at almost the same level as in August a year ago, when 1111 cars were ordered. In August, 1929, however, 2854 were placed. To Aug. 31 the total lettings for the year amounted only to 8515 cars, compared with 35,104 in the same period of 1930 and 66,011 in eight months of 1929. Activity in recent months has been about as low as in the slack months of 1921. Prospects during the first part of the current month show little sign of an upturn, as but few cars are pending or the subject of inquiry. Railroads are confining purchases of rolling stock to barest essentials.

Drop in Steel Ingot Output Continues, But at a Slower Pace

Once more steel ingot output dropped lower, the August daily average rate being 66,133 tons, or 6027 tons under that of July, and little more than half that of August a year ago, at which time the daily rate was gaining from 112,393 tons to 117,722 tons. As in July, the daily average output in August was the lowest since December, 1921. The amount of the decrease was less unfavorable, as a drop of 8.35 per cent compares favorably with declines of previous months. Since March, the high point of the year to date, there have been five successive decreases. April was off 9.04 per cent, May was down 7.97 per cent, June 17 per cent and July 9.6 per cent. In 1921 August marked the first upturn following a long decline.



	1931	1930
Aug.	66,133	117,722
July	72,160	112,393
June	79,843	136,741
May	96,365	147,515
April	104,711	158,057
March	115,138	163,628



Million Dollars

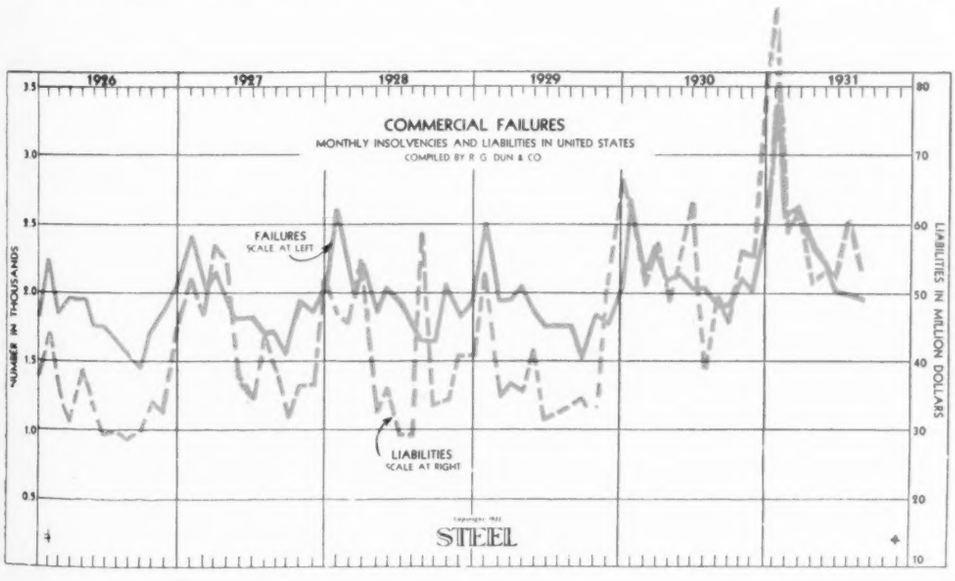
	1931	1930
July	56.5	83.0
June	50.1	69.1
May	41.2	69.3
April	39.0	62.6
March	45.9	61.2

Net Income of Railroads Moves Up Gains Are Far Below Seasonal Trend

Although the net operating income for Class I railroads increased for the third time in July, the rise was like those of May and June—much less than seasonal. Earnings in July were $56,534,903, compared with $50,162,553 in June and $83,069,375 in July, 1930. February, when the net income was $27,264,467, was the recent low. July's earnings were 31.9 per cent below those of July a year ago, while in June the drop was only 27.5 per cent. Gross revenues in July were down 17.5 per cent and operating expenses were 15.5 per cent less, compared with July, 1930. For the first seven months of the year railroad earnings were down 35.9 per cent from last year. Below seasonal gains in loadings indicate that hope for better earnings is not bright.

Small Cut in Failures Is Fifth In Succession, Liabilities Are Smaller

Commercial failures continued in August to become less threatening, the drop in the number of defaults being the fifth in succession. Liabilities were down during the month nearly $8,000,000 to $53,025,132, compared with $49,800,653 a year ago. The actual number of insolvencies was cut only a small amount, as in August 1944 failures were reported, compared with 1983 in July. In August, 1930, there were 1913 failures. The total for last month, though failing to go below that of a year ago, was the smallest since September, 1930. A number of large failures each month continue to keep the total of indebtedness high. There were 19,034 business defaults in eight months of 1931, compared with 17,712 in the same 1930 period.

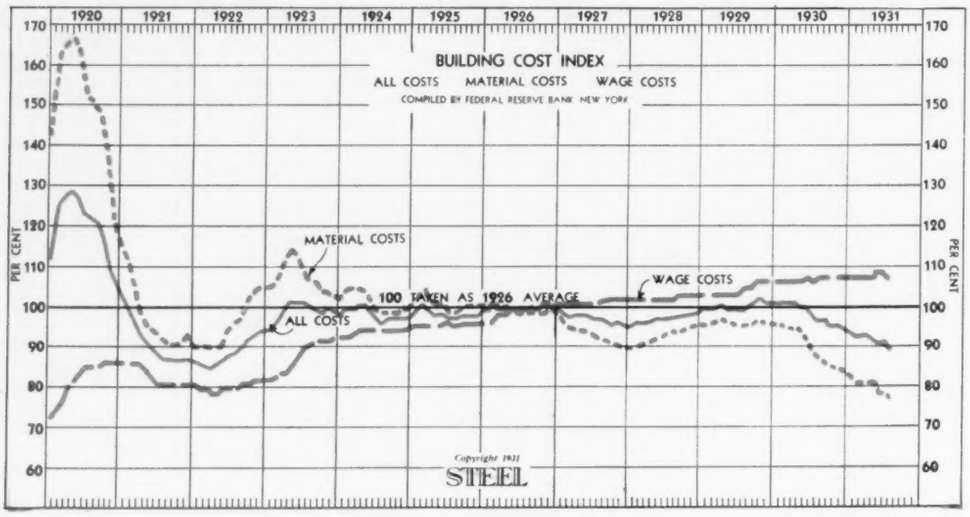


Liabilities

Aug., 1931	$53,025,132
July, 1931	60,997,853
Aug., 1930	49,800,653

Number

Aug., 1931	1,944
July, 1931	1,983
Aug., 1930	1,913


BUILDING COST INDEX
ALL COSTS MATERIAL COSTS WAGE COSTS
COMPILED BY FEDERAL RESERVE BANK NEW YORK
MATERIAL COSTS
WAGE COSTS
100 TAKEN AS 1926 AVERAGE
ALL COSTS
PER CENT
1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931
Copyright 1931
STEEL

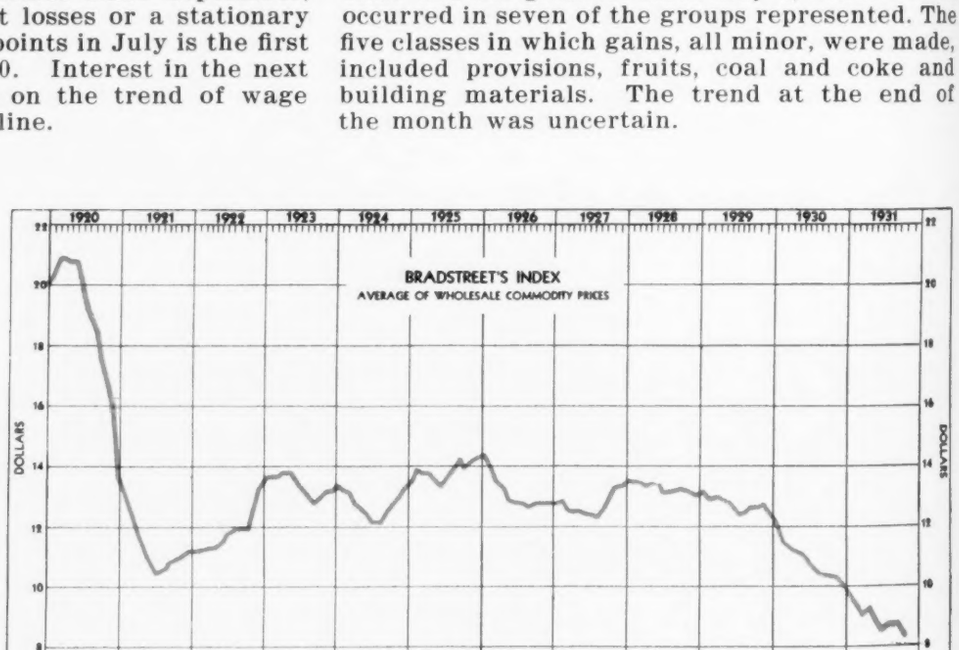
	Per cent 1931	1930
All Costs		
July	90	97
June	92	98
May	92	100
Material Costs		
July	76	89
June	78	90
May	78	93
Wage Costs		
July	108	108
June	109	107
May	109	108

Lower Costs for Both Materials and Wages Bring Building Index Lower

Lower building costs continued to be the rule in July, as materials and labor costs both receded. The materials index lost two points to reach 76, the wage index dropped back one point to 108, and the combination of the two, total costs, descended from 92 to 90. At 76, the materials cost index once more established a new low. Building wages, however, made their first retreat since June, 1930. In losing two points total costs set a new low since July, 1922. Total costs have been in a decline since September, 1929, either in one-point losses or a stationary index. The loss of two points in July is the first instance since June, 1930. Interest in the next few months will center on the trend of wage costs, which are out of line.

Commodity Prices Again Turn Downward; Take Drop of 3.4 Per Cent

Bradstreet's commodity price index dropped with unmistakable sharpness in August to $8.49, following two months of minor gains. In June the index went up 13 cents to $8.77 and gained two more cents in July. The last occasion on which it was lower than $8.49 was on May 1, 1911. The degree of decline in August was unusually great, as the loss amounted to 3.4 per cent. Excepting May of this year, when the same drop was sustained, the proportionate decline was the greatest since May 1, 1921. Losses occurred in seven of the groups represented. The five classes in which gains, all minor, were made, included provisions, fruits, coal and coke and building materials. The trend at the end of the month was uncertain.


BRADSTREET'S INDEX
AVERAGE OF WHOLESALE COMMODITY PRICES
DOLLARS
1920 1921 1922 1923 1924 1925 1926 1927 1928 1929 1930 1931
STEEL

	1931	1930
Sept. 1	$8.49	$10.43
Aug. 1	8.78	10.45
July 1	8.77	10.56
June 1	8.64	10.77
May 1	8.91	10.94
April 1	9.23	11.18

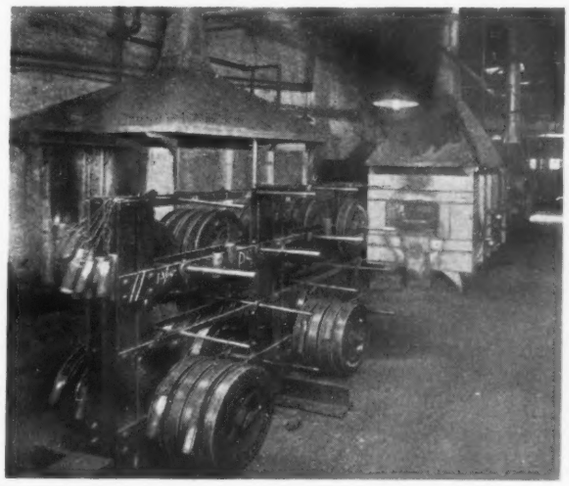
Wire is conditioned for drawing in patenting furnaces. The unit shown at the right has an hourly capacity of 1200 pounds of Nos. 9 to 15 gage coiled wire

Anthracite Gas Reduces Scale Loss in Wire Processing

BY H. R. SIMONDS
Associate Editor, STEEL

IN THE manufacture of wire for certain commodities four principal furnace operations are necessary including patenting, hardening and tempering, baking and annealing. Of the various kinds of fuel employed for maintaining the desired furnace temperatures anthracite gas generated in mechanical producers has been found after exhaustive tests to possess certain operating advantages which reduce the scale loss to a minimum.

Producer gas generated from this grade of coal now is being used throughout the wire processing departments of the Stewart Hartshorn Co., Newark, N. J. In addition to producing wire for shade rollers, the company's mill operates as a jobbing mill for many kinds of high-grade wire. One specialty is airplane guy wires, for which use a square section wire of especially high tensile strength has been developed and this is now standard with many manufacturers of airplanes.



Feeding one of the tempering furnaces. Tension on the wire is maintained by drag weights

The anthracite gas producing unit stands at some distance from the plant as an independent unit. It consists essentially of a receiving pit or bin conveniently located for truck delivery of coal, a bucket elevator which carries the coal up to an overhead bin, four down feed pipes from the bin to the hearth, a revolving grate of special design, a water seal and means for removing the ashes. The plant is self-contained and practically foolproof and is watched by one man. The company merely contracts with a local fuel company to keep the lower bin filled with No. 2 buckwheat anthracite coal. The fuel company delivers a truck load of coal each morning and because of the protection afforded by the reserve stocks maintained by the fuel company, the wire company has no fuel storage whatever other than that in the bin and hopper of the gas unit. From the unit

the gas goes through a scrubber and then the clean gas is pumped direct to the various furnaces.

The wire plant is on the site of the original mill built in 1891 and while some of the original walls are still standing, the equipment of the mill has been kept strictly in line with modern practice. The mill was started to draw No. 5 rod down to 19-gage wire for roller springs. As the shade roller business expanded the need for various sizes of wire developed and gradually new high-speed drawing equipment was installed to take care not only of the roller shade spring business but to provide wire for making the various small parts which enter into a roller spring assembly.

Uses Alloy Dies

The company now uses tungsten-carbide dies, chilled iron dies, the standard 18-hole cast plates and some steel plates and puts its product through the different heat treating processes demanded by the exacting airplane industry. The development of the present annealing and heat treating practice is one of unusual interest. In 1907 the soft coal and coke which had been used up to that time was abandoned and a bituminous gas plant was installed.

This plant gave fair satisfaction at first but the accumulation of tar was excessive and scale losses at this time were about 8 per cent. In 1922 it was decided to replace the bituminous plant with some more modern method. Oil was considered and several experimental units were operated. Electricity also was tried and one electrical unit was operated for a considerable time. This was found to be satisfactory but costly. Eventually, city gas was installed and all furnaces including baking, patenting, annealing and tempering, were redesigned by the Surface Combustion Corp., Toledo, O., for operation with this gas.

Complement of single-draw machines in the specialty shop which have a combined capacity of 20 tons daily

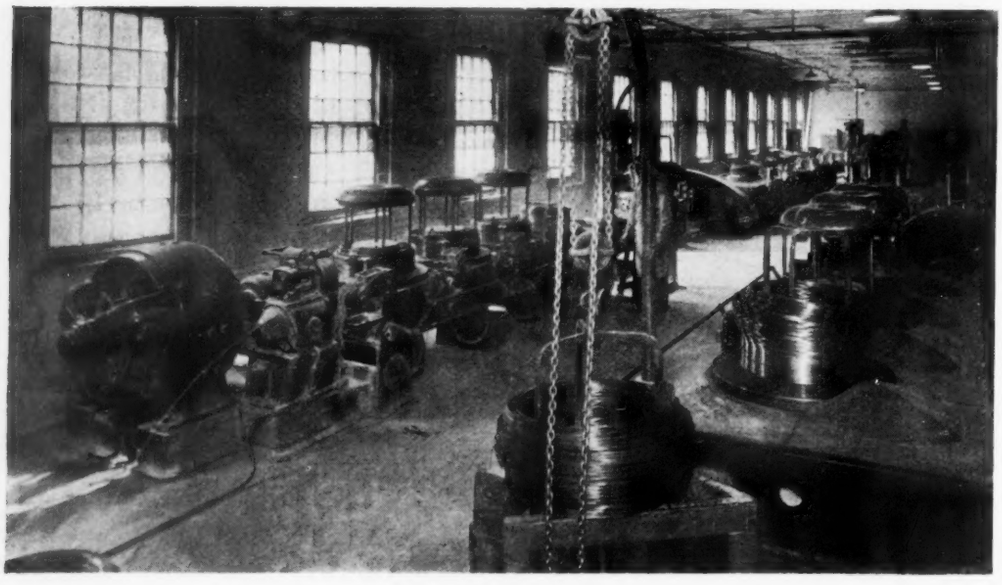
Accompanying this change the auxiliary equipment was brought up to date, one of the features being a separate pyrometer room located some distance from the fumes and dust of the mill. With this new equipment the scale losses were more than cut in half and ranged between 3 and 4 per cent. This record was considered excellent and the company certainly could not have been criticized for resting on its oars for some time at this standard of operation. However, within the past year even this has been superseded by another fuel.

An automatic anthracite gas producer designed by A. L. Galusha and furnished and built by the Dover Boiler Works, New York, has been installed. This unit supplies a tar-free low B.t.u. gas to the same furnaces which previously used city gas and the only alterations required in changing from city gas were the use of more and larger burners. With this new gas a further reduction of nearly 50 per cent in the scale loss has been secured, the company now claiming the unusual record of a loss of 1.5 per cent. This is remarkable when it is considered that the hot mill scale amounts to about 1 per cent.

The four principal furnace operations at the plant are patenting, hardening and tempering, baking and annealing. Before the patenting furnaces were installed, it was necessary to anneal five or six times during the drawing sequence. Now, however, the patenting, which is essentially a carefully adjusted continuous strand annealing, is frequently sufficient for the entire drawing sequence and in cases of an excessive number of draws, one extra annealing is all that is necessary. The patenting process is continuous at the rate of about 15 feet a minute through the furnace.

4-Draft Machines Used

After annealing by one method or another the wire goes through the drawing machines where in some cases a continuous draw through four sets of dies is accomplished. The company operates six of these four-draft continuous mills of modern design. One operator looks after two units and as each unit is provided with automatic stops and safety features, each man's job is less taxing than the old system of single draw mills. After the wire is drawn it goes through the heat treating department and from there into the spring winding department where finished roller springs are produced on automatic machines. The company does not make springs for



Four-draft machines are used on production work for continuous drawing. Six units of this type, built with automatic stops and safety features are provided

outside trade but is the largest manufacturer of shade roller springs in the world.

In order to take care of jobbing business, the company has developed a specialty wire mill and this, together with the requirements for its own spring business, gives a capacity in all grades of wire of about 20 tons per day. Shade spring wire is a high-grade, oil tempered stock with approximately 0.80 per cent carbon. In its specialty shop, however, the company uses many different alloys. Chrome-vanadium stock is used for automobile valve springs and chrome-molybdenum for the square section spring wire specified for the coiled spring rollers for roller bearings. The demand for wire drawn from 18-8 alloy is on the increase. This is used for aircraft work generally and particularly for tie rods. The sequence in drawing wire at the plant is patenting, pickling with muriatic and sulphuric acids, washing, lime coating, baking to remove the occlusive hydrogen and drawing.

Many special processes are employed for different kinds of work. The rods used for drawing wire for airplane work are cleaned by running them past a grinding wheel in a semiautomatic machine. The rods turn as they are carried back and forth past the face of the wheel.

Furnace Equipment Is Flexible

The bulk of the wire production of the plant is conditioned for drawing in the patenting furnace. This furnace is 50 feet long with a 4-foot wide solid hearth and with an 8-inch clearance between the hearth and the spring line. The furnace insulation consists of a 9-inch fire brick wall backed by 4½ inches of special brick. When operating on sizes ranging from Nos. 9 to 15 gage the furnace has a capacity of more than 1200 pounds an hour.

Despite this heavy output and the almost continuous operation of the patenting furnace there still are many cases where open annealing is desirable. This is done in a 10 x 12-foot, solid hearth furnace which has several cooling pits adjacent to it. The charge to be annealed in this furnace is heated to from 1200 to 1400 degrees Fahr., is then withdrawn and dropped into the cooling pits where it is covered and permitted to cool slowly. It then is pickled and lime coated as is all wire before drawing.

The lime coating after a partial air drying is baked in ovens, approximately 15 x 42 feet. One such oven accommodates 18 rack trucks, each 6 feet long, which are run into the furnace on three tracks. Indirect heating is used to avoid the tendency to rust through moisture deposit from the products of combustion. Two heating ducts run the entire length of the furnace under the floor and between the tracks. A fairly uniform temperature of about 350 degrees Fahr. is maintained by two high-velocity burners, one in each duct. Under normal conditions more than 25 tons of wire pass through the baking process each day of 24 hours.

The hardening furnace is operated continuously, wires passing from coils at the entering end through guides into the high-temperature chamber then on through the oil quenching bath and finally through the molten lead tempering kettle. At the discharge end the wire again is coiled on reels. The solid hearth of the furnace is 15 inches wide and 18 feet long and the normal capacity is 32 strands traveling at the rate of about 50 feet a minute. The tempering kettle is 22 inches wide and 5 feet long and is heated by burners independent of the furnace.

To insure greater flexibility the company has a retort type of hardening furnace in addition to the main furnace just mentioned. This second type uses a liquid bath for the high temperature but otherwise is similar to the first type. Pot annealing furnaces are used for annealing coiled wire which is to be shipped to the trade in the annealed state. The pots used are of cast iron and have stems or openings up through the centers so that the products of combustion not only pass around the coils of wire being annealed but also through the centers.

Improved Procedure Is Outlined for Spinning Chrome-Nickel Steel

BY M. J. R. MORRIS
Metallurgical Engineer, Republic Steel Corp., Massillon, O.

STANDARD practices in handling stainless steels have been evolved to cover almost every field of fabrication, but spinning was thought by many fabricators to present an almost insurmountable problem. Only comparatively recently has the proper procedure been worked out. However, such parts as large coffee urn tops are now being spun successfully from Enduro KA2 in one operation without resorting to an intermediate annealing treatment.

18-8 Analysis Preferred

The chrome-nickel type, of the 18-8 analysis is preferable to the straight-chrome grades of steel for spinning operations. Its greater ductility necessitates less annealing when spinning deformations are severe. Because of the tendency of the 18-8 alloys to harden upon cold working, considerable power is required to spin. The blank frequently will show a tendency to wrinkle or break along the edges. This can be avoided by staying about 1-inch back from the edge until the operation is nearly finished, saving the edge until the last.

Annealing, when required, should be done at a temperature of 2000-2050 degrees Fahr. followed by rapid cooling either in air or water. The annealing time should be short, 3 to 5 minutes being all the time ordinarily required for light gage spun parts.

Experience has demonstrated that cast-iron tools are successful in spinning stainless steel. A nickel-chromium cast iron, heat treated to maximum hardness, is superior to ordinary cast iron for this purpose. The analysis should be approximately as follows:

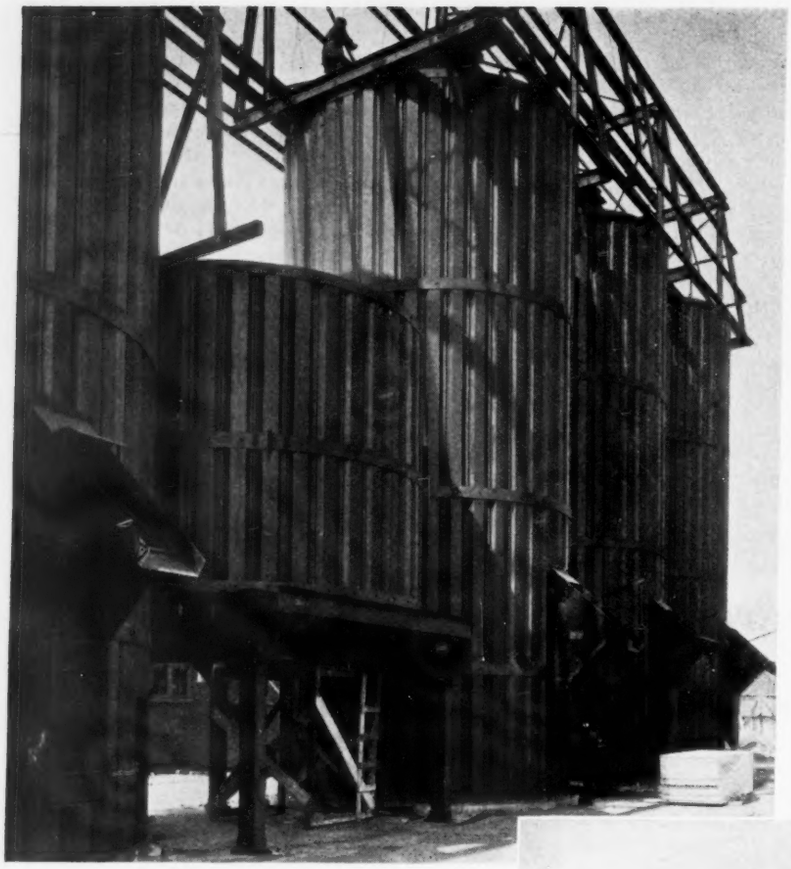
	Per cent
Carbon	3.00
Nickel	2.50-3.00
Chromium	0.75-1.00
Silicon	1.20-1.50

Water soluble lubricants are recommended, particularly where intermediate annealing is required, as the lubricant must be removed entirely before the article is placed in the annealing furnace. Soap has proved efficient as a lubricant in spinning Enduro KA2. Some jobs which represent a combination of drawing and spinning will require special annealing operations which cannot be covered in general instructions of this kind, but will require individual study.

If the straight chromium grades of stainless are to be spun, or the lower chromium containing some carbon, the foregoing instructions will apply in general, except that annealing temperature should be held to 1400-1550 degrees Fahr., followed by air or furnace cooling.

Since 1911 locomotives in service on American railways increased 13 per cent in 1924 and by 1930 had decreased 4 per cent. Average power of each locomotive increased 61 per cent from 1911 to 1930.

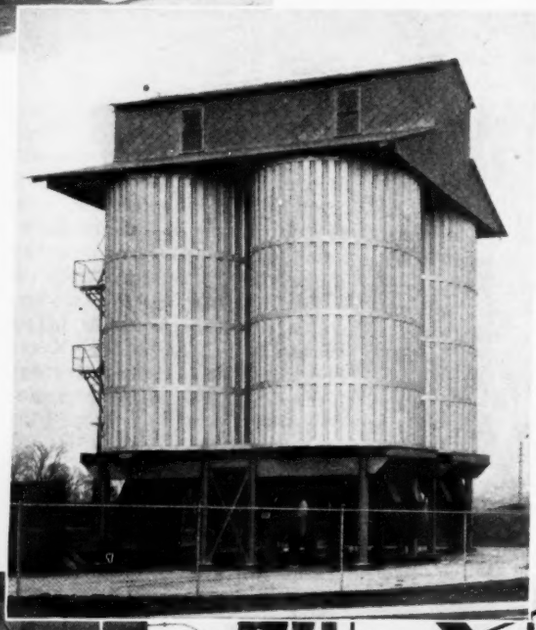
Sheet Piling Adapted to Silo Construction



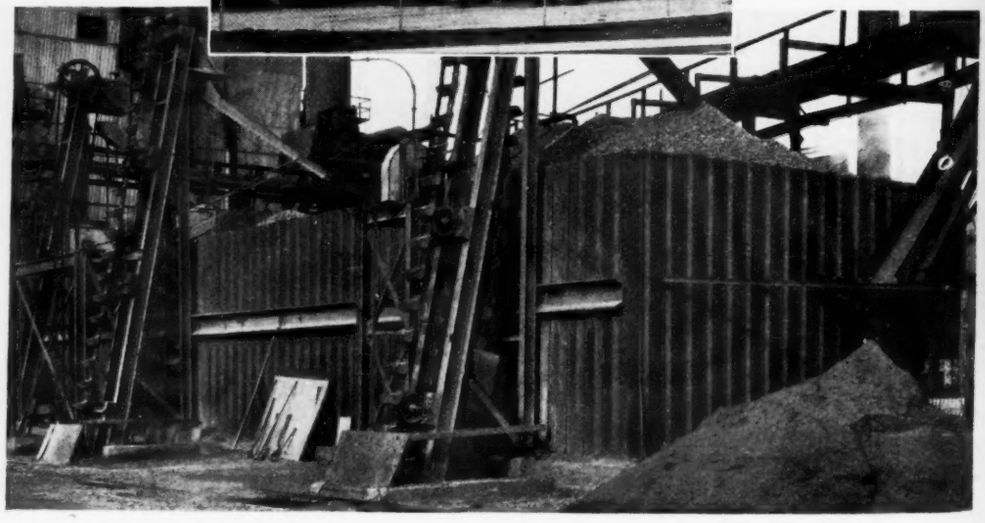
A ROUND-TYPE installation of coal silos made up of sheet piling, to be used by the Lehigh Coal & Navigation Co., Philadelphia. Discharge from the silos to trucks is by side chutes. The small bin is of the elevated type. Work is still in progress on the machinery house overhead

INTERLOCKING steel sheet piling, similar to the type described on Page 71 of the July 23 issue of STEEL, finds a new use in the construction of coal silos and storage bins. This application has been developed by the Bethlehem Steel Co., Bethlehem, Pa., the first installation having been built for M. Jennings & Sons, Philadelphia.

No forms or special equipment are required for this type of construction. After the circular base ring is placed, the piling is set in place, each section being assembled by raising it high enough to engage the interlock of the adjacent pile and then permitting it to drop into place vertically. With the exception of the circular base angle at the top and bottom of the silo, and the intermediate hoops, no bolting or riveting is required.



A TYPICAL completed coal yard with silos constructed of interlocking sheet piling, erected on an elevated steel platform. The elevated construction provides driveways for trucks, permitting them to load from overhead chutes and providing a maximum live storage. The unit has a storage capacity of 1000 tons



RECTANGULAR bin of steel sheet piling, erected by the Union Paving Co., Philadelphia, for the storage of crushed stone. Bins of this type economize on space and can be used for the storage of sand and gravel also

Photos Courtesy of Bethlehem Steel Co.

Anneals High-Speed Steel In Pit-Type Furnace

BY W. S. SCOTT, Special Representative,
Westinghouse Electric & Mfg. Co., Mansfield, O.

HIGH-SPEED and super high-speed steels, after forging, are full of strains and stresses. If these are not thoroughly removed before the hardening and tempering operation, additional stresses will be set up in the steel which may cause the tool to break at any time. In fact, sufficient stresses may be set up to cause the tool, literally, to explode. The annealing operation, by far, is the most important heat treating operation for these grades of steels.

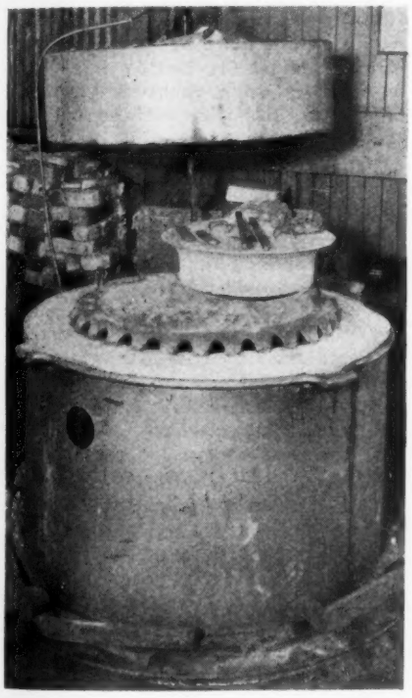
Where the forged stock is in relatively short lengths, the practice is to anneal in a muffle, packing mica dust around the steel to exclude all air, and thereby prevent oxidation. The mica dust also is supposed to give a uniformly slow cooling for the proper anneal.

In a manufacturing plant where a considerable quantity of such steels was worked into tools to be used in production equipment, an investigation was made to locate the cause for the breakage of such tools. The investigation showed that it probably was due to the annealing. Temperature exploration tests of the charge of steel under heating and cooling confirmed this.

The stock, before being annealed, was forged either into bar stock, or directly into tools, which consequently left some scale on the surface. The bar stock or tools ranged from 12 to 24 inches long.

In designing the crucible-type electric furnace for this application, no thought was given at the time to abandoning the use of the mica dust, as that was considered by the heat treaters as an essential part of the process.

With the pit-type electric furnace as supplied, having a vertical crucible made of cast nickel-chromium alloy 17¼ inches diameter and 35½ inches deep, and a sand sealed door, the opportunity was presented for experimenting with gas as a nonoxidizing agent, rather than using mica dust. Charcoal first was used, but was found to burn too rapidly. Coke, free of sulphur, then was tried, and found to be 100 per cent successful. One-quarter of a peck, placed in the furnace would last about a week.



Electric pit-type furnace with the cover and insulating plug removed. On the plug are shown bars of high-speed steel and several lumps of coke of the size used in the crucible. Approximately one-third of the furnace is below the floor level

Less Scaling Involved

Moreover, there appears to be even less scale on the work after it comes out than when it goes in the furnace. Whatever scale is on the steel is flaky, and will brush off with the hand.

With the gas furnace, 60 hours were required to get out a heat: 12 hours heating and 48 hours cooling. With the electric furnace, a heat is being obtained in 24 hours: 7 hours heating and 17 hours cooling.

Four test samples were selected at random, and given a brinell test. Brinell values of 228, 241, 256 and 256 indicated that the high-speed steel was dead soft and thoroughly annealed.

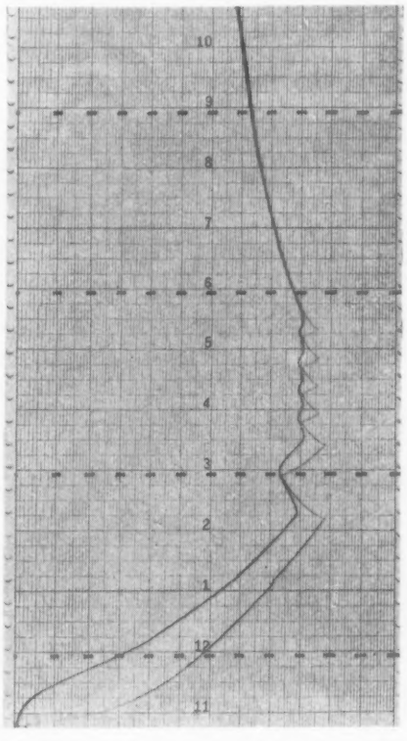
While the furnace has not been in use long enough to obtain accurate data as to its effect on the life of the tools, there are positive indications that the steel is in a better condition for hardening. A considerable amount of the super high-speed steel is cut into tips of various sizes, for forming the tips of cutting tools. This steel must be cut to the required size in a hacksaw cutting machine. Since using the electric furnace, the hacksaw blades withstand three times as much cutting as they formerly would stand, before having to be resharpened. In addition, the steel is more easily and quickly cut.

The electric furnace supplied for this application is equipped with two thermocouples and a 2-point recording and controlling pyrometer. One thermocouple, of the protected tube type, extends through the top of the furnace, and is of sufficient length to reach down into the center of the charge; the other thermocouple extends through the side of the furnace, where it is influenced directly by the temerature of the heating element.

Pyrometers Regulate Heat

The temperature control chart clearly indicates the functioning of these couples and the pyrometer. The charge is heat treated at 900 degrees Cent.; hence, the instrument is set to control the charge at that temperature. The limiting temperature on the heating element is fixed by the pyrometer setting at 980 degrees Cent. On heating, the temperature of the heating element reaches 980 degrees before the work reached 900 degrees; hence, the pyrometer causes the control to cut off the current.

The charge continues to heat for a short period of time after the current



Two-point temperature control recording chart. Heavy line indicates temperature of charge; light line indicates temperature of heating element. Degrees are in Cent. Current was cut off furnace only once by temperature of heating element

is off, and when the curent comes on again there is only a small temperature differential between the charge and heating element. After one more cutting off by the temperature of the heating element, the temperature of the charge has reached 900 degrees Cent., and from that time on the temperature of the charge controls the cutting on and off of the current, the charge being held within 7 degrees Cent., while the maximum temperature of the heating element becomes 960 degrees Cent. In other words, at operating temperature, the temperature of the heating element is only 60 degrees Cent. above the temperature of the work.

After the charge reaches 900 degrees Cent., it is held at that temperature for two hours, and the current cut off. When the charge has cooled to 400 degrees Cent. it may be removed from the furnace.

About 350 pounds of high-speed and super high-speed steel is heat treated at a time. This steel costs from $1.50 to $2.50 per pound. Repeated tests on the electric furnace showed maximum differences in temperatures of from 20 to 36 degrees Fahr.

At the time the temperature graphic chart was produced, there was annealed 400 pounds of steel, with a power consumption of 135 kilowatt hours. This gave a production of 3 pounds of steel per kilowatt hour consumed, an altogether negligible cost in comparison with the value of the steel and the results being obtained.

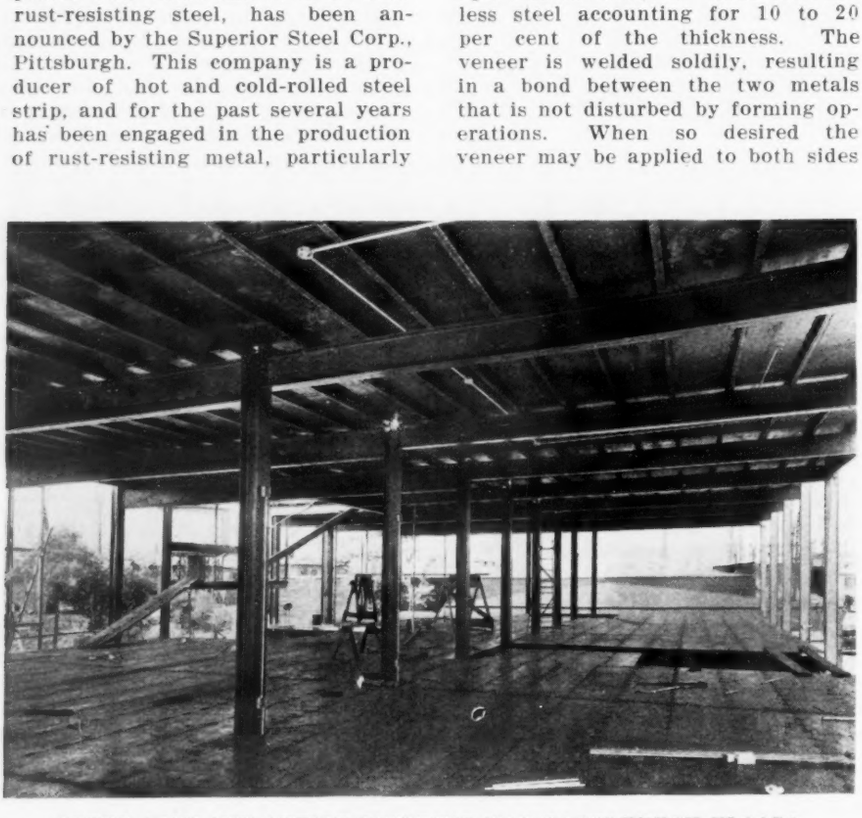
Economy Is Feature of New Steel with Veneer of Rust-Resisting Metal

INTRODUCTION of a new corrosion-resisting steel, consisting of a veneer of rustless metal applied over plain open-hearth steel and priced well below the level of solid rust-resisting steel, has been announced by the Superior Steel Corp., Pittsburgh. This company is a producer of hot and cold-rolled steel strip, and for the past several years has been engaged in the production of rust-resisting metal, particularly the 16-18 per cent chromium, and 18-8 chrome-nickel grades.

The new product, known as Su Veneer, comprises 80 to 90 per cent open-hearth steel, the veneer of rustless steel accounting for 10 to 20 per cent of the thickness. The veneer is welded soldily, resulting in a bond between the two metals that is not disturbed by forming operations. When so desired the veneer may be applied to both sides of the plain steel. The material is being produced in widths of ½ to 21½ inches and thicknesses of 0.012 inch and heavier.

Perfected only recently, this material already is being used by automotive companies in the manufacture of bright metal parts such as lamps, bumpers, medallions, tubing, windshield stanchions, etc. The metal can be drawn or formed into any part now made from other metals, according to the producer, and on difficult drawing operations, such as in the forming of deep automobile headlights, has presented no problems not already present when solid corrosion-resisting steel or brass is employed. In some cases it has been found that dies built for forming brass parts can be used successfully in drawing Su Veneer metal without changes in the die setup.

Development of this product is expected to open up new fields in use of corrosion-resisting metal for purposes where bright surfaces are desired and where in the past the high cost of the solid metal has prohibited its use. The Su Veneer metal is priced 10 to 15 cents a pound lower than solid corrosion-resisting steel.



STEEL COMPANY OFFICE BUILDING HAS BATTLEDECK FLOORS

The new 3-story 100 x 50-foot office building of the Pittsburgh Des Moines Steel Co., Des Moines, Iowa, is of traditional riveted construction, but the flooring is of steel plates 16 feet 9 inches by 48 inches and $\frac{3}{16}$-inch thick electric arc welded to 3-inch I-beams spaced on 24⅛-inch centers. This type of floor weighed 11 pounds per square foot, as compared with 33 pounds for a concrete floor of equivalent strength. The welding and steel erection was done by the building owners, using two welding operators and welding equipment manufactured by the Lincoln Electric Co., Cleveland

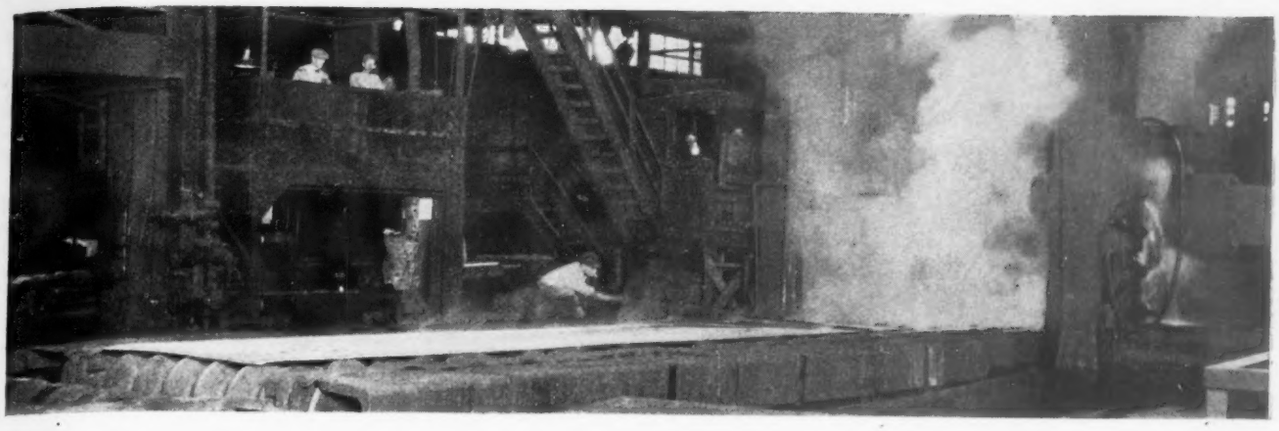
Subdivided Map Visualizes Machine Tool Markets

Industrial machinery division, department of commerce, has prepared a map showing a large number of industries in the United States to whom manufacturers of machine tools sell. This map does not cover all industries, it having been considered desirable to break down the complete list into three or four groupings.

This map is colored by counties, each coloring in each case being indicative of the value added by manufacture in metalworking machinery using plants in that county. Out of more than 3000 counties, 22 account for 48 per cent of the value added by manufacture in the industries considered. In all, 417 counties account for 96.9 per cent of the value added by manufacturer in this grouping, while 686 other counties account for the remaining 3.1 per cent.

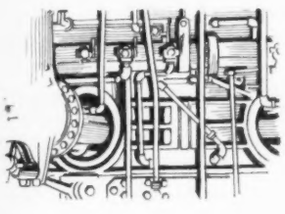
Among classifications considered in this grouping are: Aircraft and parts; agricultural implements; electrical machinery; engines; turbines; tractors; cash registers; foundries and machine shops; the automotive industry; hardware, machine tools and other metalworking machinery; mechanical refrigerators; typewriters, and a number of other industries classified as miscellaneous.

Copies of the map, and figures showing the number of plants by country and the total valuation of the plants of each type by county, are available for loan.



PROGRESS IN STEELMAKING

SINCE the installation of alloy steel dampers and valves on open-hearth furnaces four years ago, the number of users has been increasing, until at the present time about 15 steelmakers in this country have their furnaces so equipped. At one plant where a dry damper made of this grade of steel was installed the unit was inspected after 384 heats had been made and was found in perfect condition. On a 30-day operation 267,840 gallons of water was consumed per damper with a temperature rise of 27 degrees Fahr. On a 25-ton open hearth equipped with a water-cooled alloy valve, the yearly cost of water, assuming a 300-day operation, amounted to $41.47 while the annual cost of fuel oil used in heat absorption valves amounted to $432, or a total operating cost exclusive of pipe maintenance charge of $473.47. The life of alloy steel dry dampers is somewhere between five and ten years, according to an early user.



ABOSH plate recently designed by the engineering department of the Ford Motor Co. provides a double or duplex arrangement. A partition divides the plate into an inner and outer compartment. The water enters the outer compartment, flows along one side and returns to the face of the plate but instead of being discharged, it is piped to the inner compartment. Should a portion of the nose of the plate be melted off while in service, the inlet water connection may be reconnected to the inner compartment, thus maintaining the cooling effect as before, and avoiding the total loss of the plate. In flushing the system, pressure water is maintained on one compartment at the same time the other compartment is being cleaned.

WELDING is being more extensively applied to the construction of steelworks equipment. Side girders for supporting the pan of a large new sintering machine are 35 feet long and approximately 3 feet high; they are being built up of welded plates and shapes.

♦ ♦ ♦

In the galvanizing shop of a wire mill the old-type pots heated from sides were replaced by smaller and deeper kettles and the advantages that have accrued are reduced dross formation, longer pot life, and a higher quality product.

♦ ♦ ♦

A twist guide equipped with a wearing strip of abrasive-resisting steel is being used on a continuous mill rolling merchant shapes. The strip is removable and obviates the necessity of changing the entire guide when it becomes worn. By making the strip of alloy steel the adherence of scale, scabs and other foreign matter has been greatly reduced.

♦ ♦ ♦

A thyratron tube now is being used by a wire manufacturer on drawing machines to control the tension in the wire between the die and the motor-driven reel. The wire passes over a system of pulleys, so arranged that any tendency of the reel to increase or decrease the tension in the wire will raise or lower a pulley, which is connected mechanically to the movable core of a small reactance coil. The latter is connected in the grid circuit of the thyratron. Any movement of the core of the reactor changes the reactance in the grid circuit and consequently, varies the phase angle of the potential on the grid, thus changing the direct-current output voltage of the tube.

The output of the tube is used to supply power to the armature of the reel motor, whose shunt field is excited separately, and therefore any change in this voltage causes a corresponding change in the motor speed. The connections are so arranged that if the reel tends to increase the tension in the wire and causes the reactor core to lift, the motor automatically slows down, and vice versa, thus maintaining the system in a balanced condition with the proper tension in the wire.

COMPRESSED air has been found an effective means in cleaning out a hole in the bottom of open-hearth furnaces. The comment of an open-hearth superintendent is that compressed air will accomplish more in 5 minues than 10 men at the end of a rabble will splash out in a half hour.

♦ ♦ ♦

Continuous cleaning of rods intended for cold-drawn products and cleaning by galvanic action are under experimentation at the plant of a large consumer of cold-drawn shapes in the Detroit area.

Oil well holes during drilling are reamed by an underreamer such as shown here. It consists of a hardened steel mandrel carrying a series of eccentric manganese steel cutters

Worn Reamers for Oil Well Drilling Require Care in Building Up

IN OIL well drilling it is necessary to ream the hole to the proper diameter before setting the casing. One of the tools utilized for this purpose is known as a rotary underreamer, this tool consisting of a hardened steel mandrel carrying a series of eccentric steel manganese cutters and a fish tail or pilot bit at the lower end. Being eccentric, this reamer passes through the casing, but after passing beyond the casing, rotation causes the bit to center itself and the long teeth to enlarge the hole with a downward cutting action.

Built up Frequently

This type of underreamer, one of which is shown in the accompanying illustration, is manufactured by the E. B. Wiggins Oil Tool Co. Inc., Los Angeles, in a range of cutter sizes from 3⅞ to 27 inches diameter. Because it does not depend upon mechanical contrivances to make it operate, the tool gives long service; nevertheless it is necessary frequently to build up worn cutters. This in itself is a simple operation, but definite methods must be followed to insure satisfactory built-up cutters.

Copper forms made of bar copper bent to fit the teeth are clamped in place and each tooth is built up with self-hardening rod by the arc or acetylene welding process to about ⅛ inch beyond the finished length. The cutters then are assembled on the mandrel, or dummy used for that purpose, the same as for underreaming. The mandrel is mounted between centers in a lathe with the center of the mandrel away from the centers of the lathe a distance equal to the finished cutter offset.

When the mandrel is rotated in the lathe, it turns off-center but the ends of the cutters travel in a circle about the lathe center. A grinder is mounted on the cross carriage for grinding, using the lathe for feeding the cutting. Teeth having cutting edges opposite are used to gage the grinding work—10⅝-inch cutters, for instance, are ground 10⅝ inches across the gage teeth.

After grinding in the lathe the backs of the teeth are ground and the faces polished and hard faced with stoodite, stellite or other similar material. Some of the cutters have been rebuilt by this method more than 50 times, it is claimed.

New Insulating Firebrick Shows Good Qualities

Because of the greater interest which metallurgists have shown recently in the use of insulating firebrick, the Babcock & Wilcox Co., New York, has placed on the market a new brick of this class. This product, designated as No. 80 insulating firebrick, is said to combine resistance to high temperature, high insulating properties and strength.

In announcing this brick the company states that until recently the most satisfactory high temperature insulator consisted largely of diatomaceous earth. This material, containing 95-98 per cent silica, is an excellent nonconductor of heat, but fails under exposure to the direct blast of a furnace. Furnace designers when using this material have protected it behind a wall or outer shell of firebrick and this method increases the weight and space of the furnace installation.

No. 80 insulating brick is designed for use without protection, and when exposed to furnace gases and furnace temperatures is said to have refractory characteristics that compare favorably with high-grade firebrick.

The cold crushing strength of the brick is given as 158 pounds per square inch. A furnace built of 18 inches of firebrick, backed with 2 inches of insulating block, has the same heat flow and can be replaced with a 4½-inch wall of the new No. 80 insulating firebrick and 2 inches of insulating block. The weight ratio between these two designs is 16 to 1, and the lighter construction has but 6¼ per cent of the heat storage capacity of the heavier.

Announce Topics for Gray Iron Institute Meeting

Among speakers who will address members of the Gray Iron institute at their fourth annual convention in West Baden Springs, Ind., Oct. 15-16, are W. J. Barrett, a member of President Hoover's advisory committee on unemployment, and George L. Willman, Chicago, an authority on merchandising.

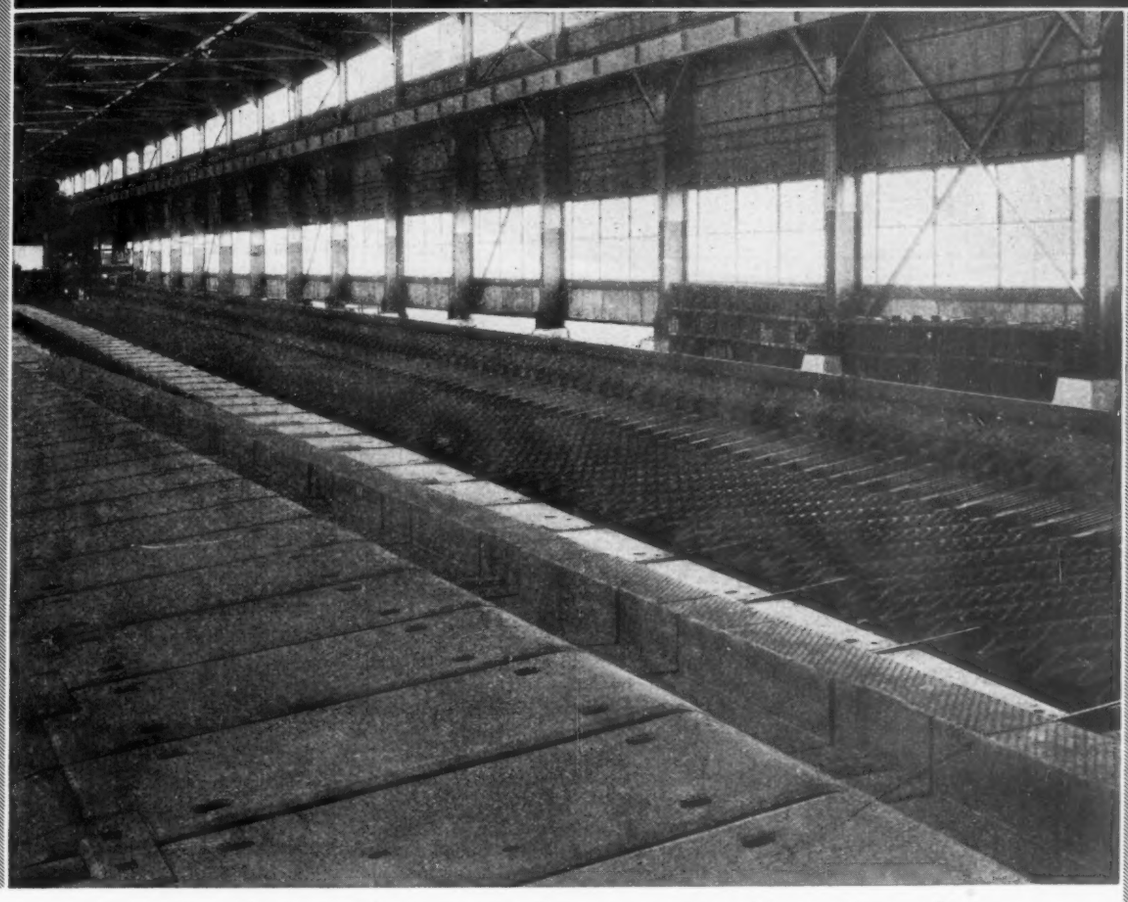
Mr. Barrett will discuss the employment problem and Mr. Willman will deal with methods for merchandising gray iron castings.

Topics to be considered at various group sessions will include "Rate Setting," "The Foundry Budget," "Standard Practices and What They Mean To the Industry," and "Proper Specifications or Interpretations of the Technical Bulletins."

Consider Safety in Welding

Safety will be the principal subject of discussion at a meeting of the Philadelphia section of the American Welding society, the evening of Sept. 21 at the Engineers' club, 1317 Spruce street. T. A. Walsh, safety engineer, American Optical Co., Southbridge, Mass., will present a paper entitled, "Head and Eye Protection in Relation to the Job of Welding"; other papers include "Protection from Fumes, Dust and Injurious Rays in Welding Operations," by Frederick H. Klein, Wilson Products Inc., New York; and "Properly Protecting the Welder," by J. H. Reid, vice president and sales manager, Chicago Eye Shield Co., Chicago.

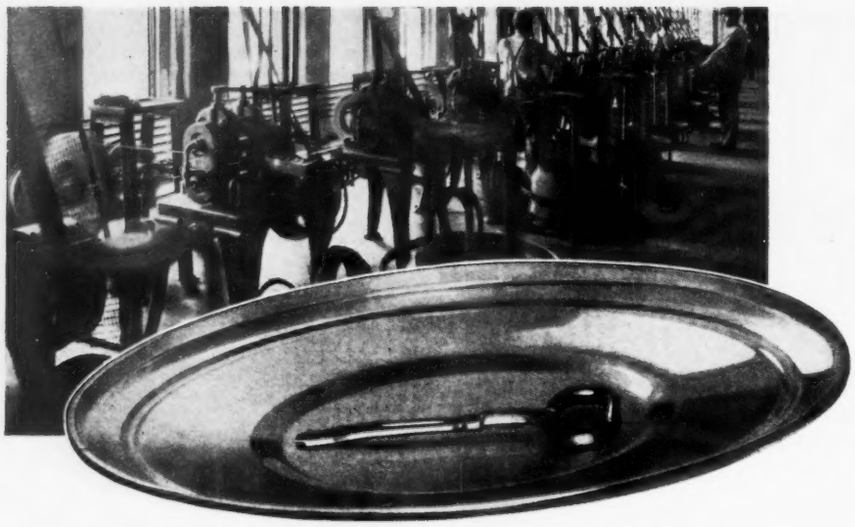
MESTA MECHANICAL
COOLING BED
FISK PATENTS



The MESTA Mechanical Cooling Bed (Fisk Patent) was developed to meet the needs of the high grade Merchant Mill and is designed to handle a variety of products such as rounds, squares, shapes, flats and irregular sections. Any of these products may be cooled slowly in close formation or rapidly in spaced formation. Care has been taken to avoid scratching or marking of products and the entire bed surface is machined including the grooved bed members.

MESTA MACHINE COMPANY
Pittsburgh, Pa., U. S. A.

Mesta



Drawing wire to specification for the manufacture of can keys

Large Uses of Steel In Small Ways

200th Article ◆ Can Keys

A KEY used for opening a can packed with food or other material weighs about ⅛-ounce, yet so many of them are used that approximately 500 tons of steel is consumed annually in their manufacture. The key was devised to supersede can openers, with their sharp blades, but it has not supplanted them, as innumerable improvements have been made in can openers. The manufacturers of keys, however, say that the trend in production is upward.

Census reports give the annual output of cans packed with soup, vegetables, fruit and fish as more than 6,500,000,000. A leading can manufacturer estimates that more than 1 per cent of all the cans in these groups use keys. The proportion in the group of some dry food products, such as coffee, tea and milk powder, probably is higher.

The demand for vacuum packing in the food industry calls for metal containers. Metal cans are easily sealed by soldering, and such a joint is opened conveniently by the use of a small wire key.

Vacuum packing offers many advantages. It is difficult to produce a satisfactory condensed milk without using vacuum. Vacuum packing usually prevents change of color, loss of aroma and caramelization which frequently result from boiling in open kettles. Fruit, for instance, retains its plump appearance and natural flavor when packed under vacuum. A recent report on vacuum-packed food states that the presence of a normal amount of air in a container often allows progressive oxidation which spoils the flavor and shortens the life of the product.

On the assumption that 1 per cent of the 6,500,000,000 cans used by the four groups mentioned are equipped with keys, the total annual production of keys is 65,000,000. A key manufacturer estimates the average weight of keys at 8 pounds per 1000, and on this basis there is an annual consumption of 260 tons of wire for keys for the four groups.

500 Tons of Keys

Can manufacturers claim these four groups, as large as they are, account for not more than one-half of the keys manufactured, and it seems probable that at least 500 tons of wire is used each year in this country for making keys.

The keys usually are made of copper coated, low-carbon steel wire. Special automatic machines are used in quickly transforming the wire from coils into the finished product. These machines are similar in design to the more familiar wire forming machine used for making button hooks, clothes line hooks, and similar articles. The keys vary considerably in design. A common type of key has a slot in its shank which fits over a projecting lug on the cover of the can. A special attachment for piercing the wire to form the slot is incorporated in the wire forming machine.

The wire used must be soft enough to withstand the rapid bending and punching, to prolong the life of the dies. Wire for can keys frequently is drawn to the key manufacturer's specifications.

Making a Shovel-Crane-Dragline Last Longer

Five factors materially affecting the life, efficiency and maintenance cost of a shovel-crane-dragline powered by an internal combustion engine are outlined by G. H. Olson, general manager of the shovel division, Link-Belt Co., Chicago. The factors, with suggestions regarding each, are as follows:

1. *Cleanliness.* The machine and parts should be kept clean and well painted at all times.

2. *Fuel.* Use of good fuel, kept perfectly clean, will increase the life of the engine and give a more dependable power plant.

3. *Lubrication.* The machine should be lubricated frequently and carefully with the correct grade and kind of lubricant for each requirement. Excess oil and grease should be removed. A lubrication chart, prepared by the manufacturer of the machine, should be observed closely.

4. *Handling.* Care in handling the machine should be exercised, abnormal operation being avoided. In shovel work a proper combination between cutting depth and height should be determined, making the work easier on the operator and the shovel, and resulting in greater efficiency. In rock or hard excavating, powder should be used to break up the material to convenient handling size.

5. *General care.* The machine should be examined regularly if dependable consistent service is sought, such regular inspection revealing wear on various parts and indicating need for replacement.

To Standardize Inspection Of Reinforcing Steel

Proper procedure for inspection of new billet reinforcing steel at mills is covered in a standard specification recently developed by the committee on inspection and testing of the Concrete Reinforcing Steel institute. This procedure is being submitted to the National Engineering Inspection association for adoption as a standard of this organization. The committee is also developing a companion specification as to procedure for inspecting reinforcing steel in warehouses and will submit recommendations to the engineering inspection association for inclusion in standard specifications.

Scanning the Technology of Steel

A Digest of Important Developments in Scientific Research, Engineering Progress and Operating Procedure Pertaining to the Production, Processing, Application and Performance of Steel

Oxygen in Steel

Determination of oxygen and nitrogen in iron and steel by the vacuum fusion method, bureau of standards Journal of Research, August 1931, *p.* 375, 25 *pp.*, 5 *illusts.*

The effect of the presence of gases on the properties of metals has attracted considerable attention among metallurgists during recent years. In the ferrous metals particular attention has been paid to oxygen and nitrogen. A method is described for determining amounts of these gases in steels, the sample being melted in an evacuated furnace heated by induced high-frequency currents. The gases which are evolved from the molten sample are withdrawn from the furnace and circulated through an analytical train by means of a mercury vapor diffusion pump.

The use of this diffusion pump, simplification of the analytical train, and the use of a sample loading device constitute improvements over previous apparatus. In the absence of interference, the method gives values reproducible to within 0.002 per cent for either oxygen or nitrogen. Interferences in the oxygen determination, caused by the presence of reactive metallic vapors or difficultly reducible oxides, are discussed. No such interferences have been observed in the determination of nitrogen.

—STEEL, 9-17-31

Case Carburizing

Use of sodium cyanide for case-carburizing operations, discussed by H. B. Northrup, in preprint paper 60-26, *Electrochemical Society, New York*, 5 *pp.*

After touching on the early practice of case hardening by cyanides, the use of sodium cyanide is discussed at length. In commercial practice, the sodium cyanide is diluted with sodium carbonate and sodium chloride; these salts tend to stabilize the sodium cyanide and thus materially reduce the operating cost. A series of experiments is presented, illustrating the change in the composition of sodium cyanide-rich mixtures upon prolonged heating. In present-day practice 25 per cent sodium cyanide mixtures commonly are employed. Necessary equipment is comparatively inexpensive. The process of case hardening permits of greater precision than other processes due to better temperature control and more complete knowledge of the strength of the carburizing material.

—STEEL, 9-17-31

Drawing Lubricants

Suitable lubricants for the deep drawing of steel, discussed by M. Reswick, in Metal Progress, September 1931, *p.* 69, 5 *pp.*, 3 *illusts.*

The author discusses the characteristics of a lubricant which must meet the requirements of deep drawing operations incuding film strength, oiliness, adhesiveness and spreading, ease of cleansing, noncorrosiveness, stability and uniformity, physiological effect, odor, resistance to climatic conditions and economy. Principal ingredients of lubricants and their functions are enumerated including tallow, mineral oil, water and fillers. Several analyses of typical drawing compounds on the market are tabuated.

—STEEL, 9-17-31

Refractories

Type of refractories and cements suitable for hot-dip galvanizing furnaces, discussed by W. G. Imhoff, in Industrial Gas, September 1931, *p.* 11, 2½ *pp.*, 1 *illust.*

In selecting refractories and cements for these furnaces the type of fuel to be used is the first consideration. Special galvanizing furnace designs require special refractories and cements. Special firebrick tile are used for the combustion chambers, baffles and roof; over the combustion block tunnel, the waste gas header at the end of the furnace, the explosion vents, and under the kettle. The author reviews certain aspects of the problem, cites a number of individual cases, discusses their soution, and describes the behavior of standard materials used for pot settings and the furnace proper.

—STEEL, 9-17-31

Scrap Reclamation

System of salvaging metal chips and sheet metal trimmings in a large Detroit factory, explained by R. R. Rees, in Machinery, August 1931, *p.* 922, 4 *pp.*, 9 *illusts.*

During 1929, more than 9800 tons of metal scrap was baled, representing a net return on the investment of 150 per cent. In addition to the financial return, considerable floor space was saved because of the large area previously taken up by the accumulation of scrap steel. The quantity of oil reclaimed from steel chips amounts to 140,000 gallons per year representing a net return on the investment of 18 per cent. Under normal conditions, 2700 tons of steel chips is produced a month or 32,400 tons a year. The market value of briquetted chips is about 60 per cent more than bulk chips, and this item represented a net return on the investment of 42 per cent, or a combined total for the oil and briquettes of 60 per cent. In 1929, there were sold out of the salvage department, such materials as carpets, cotton, canvas, leather, nonferrous metals, etc., representing a revenue which ran into six figures.

—STEEL, 9-17-31

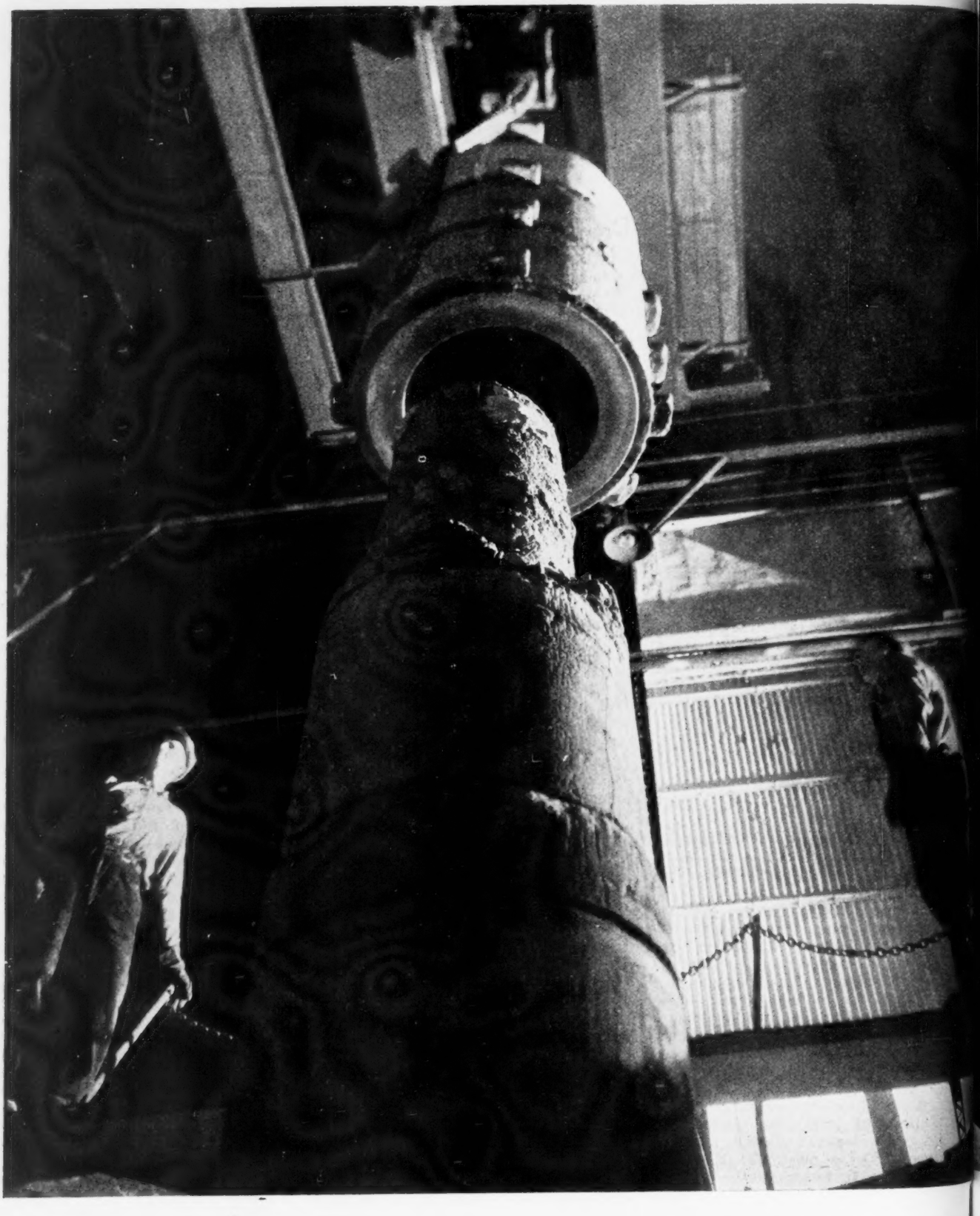
Pulverized Fuel

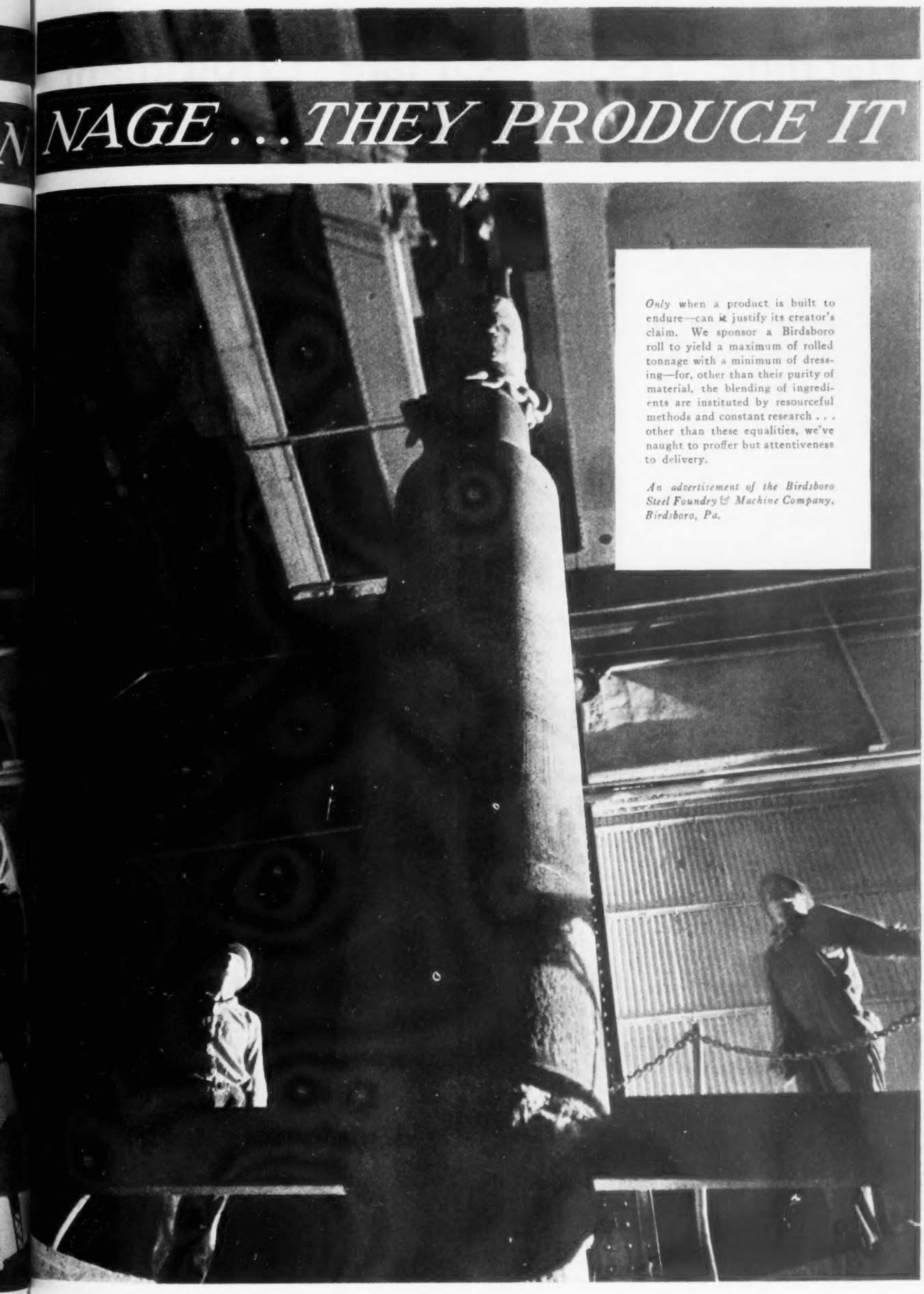
Successful operation of pulverized fuel plants, discussed in Power, Aug. 21, *p.* 266, 2 *pp.*, 2 *illusts.*

One of the best methods of igniting pulverized-fuel fires is the use of an oil or gas torch incorporated in the burner, the torch being so arranged that it can be withdrawn from the hot zone when ignition has been established. It is most essential when starting any pulverized-fuel fire, regardless of the kind of coal being burned or type of burner employed, that a rich mixture be used until stable ignition is established. If for any reason ignition does not take place within 10 second upon admitting the coal and primary air to the furnace, the coal feed should be stopped at once by either stopping the feeder or shutting down the pulverizer. Experience has shown that pulverized coal should not be allowed to stand in the bin more than a week, although as the volatile content decreases the period of storage may be increased. Air transport pumps require ordinary attention to lubrication and inspection of the screw and air ring at intervals of two to six months to determine wear on screw and if air holes are clear. In screw conveyors the most important items are the radial and thrust bearings.

—STEEL, 9-17-31

THEY'RE BUILT FOR TON




NAGE . . . THEY PRODUCE IT
Only when a product is built to endure—can it justify its creator's claim. We sponsor a Birdsboro roll to yield a maximum of rolled tonnage with a minimum of dressing—for, other than their purity of material, the blending of ingredients are instituted by resourceful methods and constant research . . . other than these equalities, we've naught to proffer but attentiveness to delivery.
An advertisement of the Birdsboro Steel Foundry & Machine Company, Birdsboro, Pa.

Machine Tools and Plant Equipment

«Without machine tools modern machinery could not be built.»
—Joseph W. Roe

Motor Driven Bench Drill Has Wide Capabilities

Buffalo Forge Co., Buffalo, has introduced a new upright drill with unit motor drive, which will drill to the center of a 13½-inch circle. This machine is shown in the accompanying illustration.

In addition to its capabilities as a bench drill of wide range, it can be used as a small radial drill by swinging the head to one side of the base, it will accommodate a tool grinding attachment, and it can be used with a flexible shaft attachment. The head can be swung entirely around the column and locked in any position. Drive is by V-belt, and 4-sheave pulleys give four spindle speeds ranging from 855 to 3400 revolutions per minute.

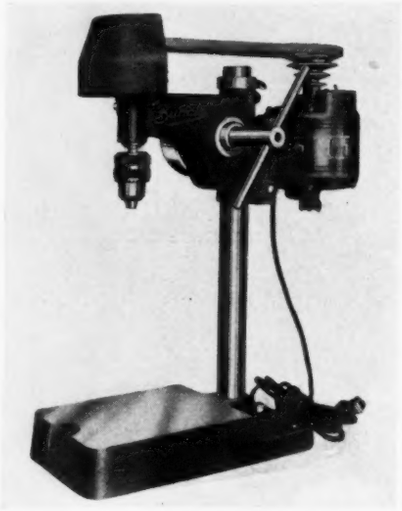
The drill is 26 inches high overall, height of its 1¾-inch column being 21 inches. It has a table with 8 x 10-inch working surface, travel of head is 12 inches and greatest distance between spindle nose and base is 14 inches. When fitted with a 1/6-horsepower motor it has drilling capacity of ⅜ inch and with a ¼-horsepower motor it will drill ½ inch. The spindle is ball bearing mounted and a chuck is furnished with the machine. Net weight is 88 pounds.

◆

Car Loading Machine Spots Loads up to 8000 Pounds

Wean Engineering Co. Inc., Warren, O., announces that it has secured the exclusive license to manufacture the mechanical carloader shown in the accompanying illustration. This device, which is designed to operate in conjunction with an existing wareroom loading crane, is capable of locating loads up to 4 tons in weight in any part of a standard box car.

The machine is designed for use in conjunction with a 10-ton crane, the loader itself weighing approximately 6 tons when developed to support a 10-ton load. The loader is suspended from a standard crane hook and may be disengaged in a few seconds when the crane is required for service elsewhere. To assure perfect balance of the loader proper, whether loaded or hanging free, the device itself is balanced and the load is located on the center of gravity of the crane hook.



Radial type bench drill designed by Buffalo Forge Co.

By using various types of loading grab hooks, an almost infinite variety of materials can be spotted by means of this loader. Time required to load a car will vary, of course, with kinds of material and weights of lift. In loading steel sheets, for instance, one craneman and one hooker can load a 50-ton car in less than 30 minutes. Aside from its time saving features, the builder points out that sheets and like material, when handled in strapped bundles by means of this loader, are not subject to the destructive scratching which is almost inevitable when handled singly by other methods of loading.

◆

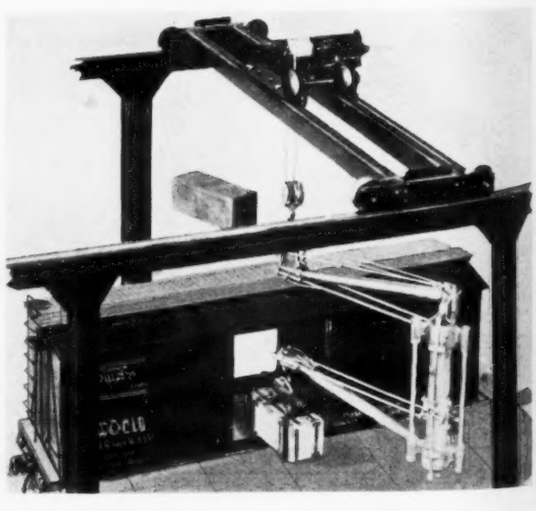
New Milling Cutters Cover General Requirements

Ex-Cell-O Aircraft & Tool Corp., 1200 Oakman boulevard, Detroit, announces a new type of inserted blade milling cutter which is equally adaptable for use with high-speed steel, stellite or tungsten carbide tipped blades.

These cutters, which are adapted both for roughing and finishing, have hardened and ground bodies designed for maximum strength and rigidity. Blades are wedge type and any wear in the body slots is taken up by the taper on the blades. The blades are anchored securely by a holding clamp, one clamp serving to hold two blades. The maker asserts that when the clamps are properly tightened the assembly of blades and body becomes as strong and rigid as a one-piece cutter.

Each blade can be adjusted horizontally to compensate for wear or breakage, and to give the correct amount of overhang which is so important in the case of tungsten car-

THIS mechanical carloader manufactured by Wean Engineering Co., when used in conjunction with a 10-ton crane, is capable of locating loads up to 4 tons in weight in any part of a standard box car



bide blades. Adjustment of these cutters does not depend upon mechanical stops which limit fineness of adjustment. They can be locked positively in any required position.

Correct backing is provided to each blade and clamping pressure is distributed so that it will not crack the more brittle materials. The shape of the cutters is such that rigid support is assured with minimum clamping pressure.

These new cutters are available in diameters ranging from 5 to 24 inches. Number of teeth is determined by material to be milled, type of cut to be made and whether light or heavy duty is called for. Three sizes of standard blades cover the complete range of sizes, which cuts blade inventory to the lowest terms.

◆

Rotary Planer Shows Speed On Milling Girder Ends

Cleveland Punch & Shear Works Co., 3917 St. Clair avenue, Cleveland, recently has brought out a rotary planer for which a high degree of productive efficiency is claimed. This machine is shown in the accompanying illustration.

The carriage is traversed hydraulically and has an infinite number of feeds. By means of a feed selector any two feeds within the range of the machine are instantly available, a feature of particular desirability when thick and thin sections are encountered in close proximity, as in the case of heavy structural members.

The bed is provided with an improved type of ways and long life is assured to them by an effective method of lubrication. All gears are inclosed in oil-tight cases. There are automatic stops at each end of the bed. Being entirely self-contained the machine is well suited to mounting on a circular base when this arrangement is found to be desirable.

As a practical test, this rotary planer has milled the end of a heavy structural girder at the rate of 12 inches per minute, which is an unusually high production speed.

◆

Vertical Motor Built for Driving Machine Tools

The Reliance Electric & Engineering Co., Cleveland, has developed the direct-current motor shown in the accompanying illustration. The motor is designed for vertical operation and is made in sizes up to 50 horsepower running at a speed of 1150 revolutions per minute.

These motors are provided with a ring base for mounting and a drip cover to protect them from falling dirt and chips and from dripping water, oil and other injurious solutions. Where it is desirable the motor can be mounted direct to the machine being driven without the ring base. In this case it appears as an integral part of the machine.

Amply large bearings are used to take up the thrust load or weight of the armature. Two heavy eye-bolts are provided to make handling easy.

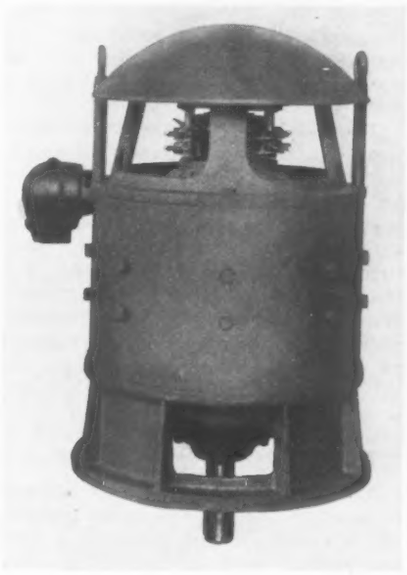
◆

Liquid Protective Coating Is Highly Resistant

Liquilox Co. Ltd., 576 Subway Terminal building, Los Angeles, has developed a liquid protective coating for application to metals, wood, cement, stucco, fabric, etc. by means of spray gun or brush. This material, which is produced from an ore mined in the western part of the United States, has been under development for more than six years.

According to the manufacturer the coating, which can be applied either to hot or cold surfaces by inexperienced workmen, offers a high degree of protection against all acids, alkalies and salts, and against water, barnacles, termites, etc. It also protects against indirect heat as high as 1500 degrees Fahr.

As an example of alkali resistance, the maker cites the case of seven plating tanks in constant use by a large plating company. After being treated with the new protective coating these tanks were used for 18 months with solutions running as high as 18 pounds of potassium cyanide per gallon. At the end of that period, examination showed the tanks to be capable of many months more service without reconditioning.



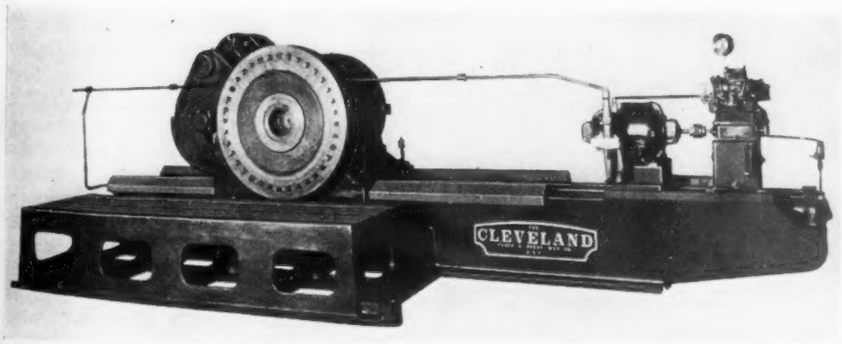
Vertical electric motor built by Reliance Electric & Engineering Co.

◆

Infeed Control Speeds Up Multi-Diameter Grinding

Cincinnati Grinders Inc. Cincinnati, has developed a semiautomatic infeed unit which speeds up grinding and sizing of multiple diameter work on cylindrical grinders built by this company. An illustration on Page 46 shows a 14 x 18-inch plain grinder of self-contained type into which this new infeed has been incorporated.

The unit, which is electrically and hydraulically controlled, is located on the bed of the machine, directly behind the wheel head. Positioned in the rear of the device is a flat master cam which is made up of a series of steps, each step corresponding to one of the diameters to be



Rotary planer, built by Cleveland Punch & Shear Works Co., is equipped with hydraulic feed and shows speed on milling structural girders

ground. This cam controls the relative position of wheel and work, the cam being ground to close limits to insure consistent clearance between work and wheel.

The unit also contains six solenoid stops which function to control longitudinal travel of the master cam to bring its proper steps in line with a positive block stop which contacts with the step, representing the particular diameter being ground. On the front of the machine is a master drum switch with a star control wheel, which in the machine illustrated happens to have six notches to suit the work for which this grinder is set up.

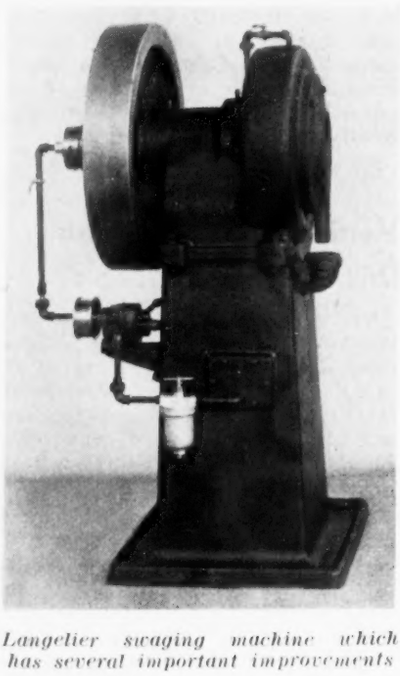
Controls Grinding Diameter

This wheel is indexed by station dogs when the table is hand traversed. At each step of indexing a corresponding contact point in the master switch is closed, thus actuating the corresponding solenoid stop. This limits the amount of cam travel and determines the grinding diameter.

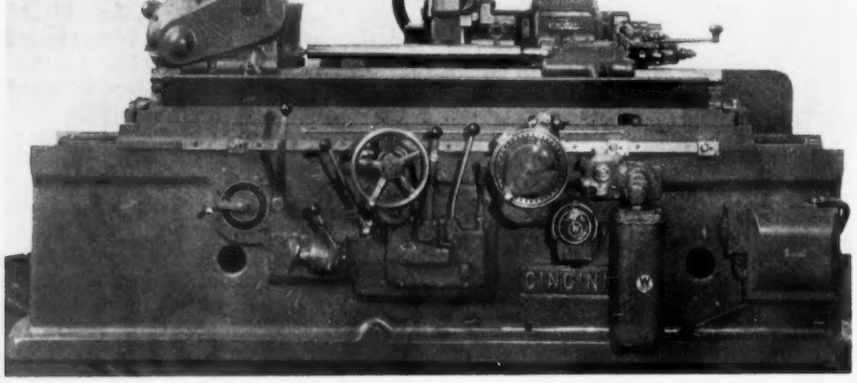
One eighth turn of the cross feed hand wheel in a counterclockwise direction causes a valve to open, thereby operating a piston controlling the cam bar. The wheel head then travels rapidly toward the work until the block stop contacts with the proper step on the cam. This positions the grinding wheel approximately 1/64-inch from the work, from which point the wheel is fed to the work by the hand infeed wheel. Limits of plus or minus 0.002-inch are held on all diameters this being well within usual commercial tolerance.

Upon turning the cross feed hand wheel in a clockwise direction, the hydraulic valve is reversed and the wheel travels back to its original position. As the distance of rapid cross feed to the wheel head is approximately 1¼ inch, all types of multiple diameter work within a diameter variation of 2 inches can be handled by means of this unit. Also, by removing all dogs on the table, and setting the star wheel drum switch so that the wheel head infeed movement will be controlled by a single cam, the machine becomes thoroughly effective on single diameter work.

By means of a special "diamonding switch," truing of the wheel is caused to take place at a point beyond the largest diameter of the work, thereby avoiding possibility of inadvertent interference between wheel and work.



Langelier swaging machine which has several important improvements



Cylindrical grinder with semiautomatic infeed device developed by Cincinnati Grinders Inc. to speed up grinding of multiple diameter work

◆

Swaging Machines Have Roller Bearing Spindles

Langelier Mfg. Co., Providence, R. I., announces a new line of swaging machines featuring roller bearing spindles. One of these swagers is shown in the accompanying illustration.

These machines have cabinet bases with integral oil reservoirs. The lubricant pump, which is belt driven from the spindle, is attached to the rear of the base, draws oil from this reservoir through a filter and forces it in liberal volume and at considerable pressure to the head, thereby lubricating and cooling the working parts. The discharge line from the pump is split into two leads, one going to the top of the head, the other to a gland at the rear of the hollow spindle.

This assures thorough lubricating and cooling of dies, hammerblocks and rolls, and head rolls. As a further provision for cooling when doing hot swaging, all these machines, with the exception of a bench-mounted model ordinarily used for pin pointing, have water jackets in their heads. Spindle bearings are lubricated by pressure greasing through two alemite fittings. A grease seal flinger prevents the cooling and lubricating oil used in the head from working back into these bearings.

Flywheel Keyed to Spindle

The webbed flywheel is seated on a taper on the spindle, is keyed and held in place by an arrangement of lock nuts. This flywheel also is the driven pulley, and can be furnished crowned for flat belt or ground for V-belts. In the case of self-contained machines the motor is attached to the base, an idler being provided for flat belt drive and a sliding motor base for V-belts.

The complete line comprises eleven sizes, ranging in diameter capacity from 3/16 to 9 inches. The first five sizes use dies of standard length, while die lengths for the six larger machines are made to suit customers' specifications. The three largest machines, namely those of 5, 7 and 9-inch tube capacity, can be furnished either with plain or roller spindle bearings. When plain bearings are used, an outboard bearing is located beyond the flywheel.

Operations Up; Prices Less Steady

Steelmaking Fractionally Higher Than Before Labor Day, but Demand Remains Sluggish—Pipe More Active—Wage-Cut Talk Is Retarding Factor

STEELMAKING operations have rallied four points over last week, which was depressed by Labor day, and now stand at 32 per cent, fractionally higher than before the holiday interruption. But this slight improvement is not regarded as especially significant, in view of the generally sluggish character of demand for practically all steel products.

September is now more than half gone, with no acceleration in either production or new business. While some hopes still are entertained for a moderate seasonal improvement over the next 30 days, these expectations have no actual, tangible support in consumer commitments, or prospects for them.

At Youngstown, a mild improvement cuts across the majority of finished steel products, and the outlook in that district is more encouraging. At Cleveland, orders for heavy finished steel this month to date exceed slightly those for the comparable period in August. But at Chicago, railroads have not maintained their recent rate of specifying for track materials, and instead of production expanding, some capacity will be dropped. In most of the other districts unchanged and indifferent market conditions prevail.

There is an occasional suggestion that steel prices, especially those of heavy finished products, are moving into a more uncertain area. Today, as for a number of weeks, demand lacks the volume that would normally elicit concessions. A certain degree of price stability results from the braking force exerted by profitless operations.

Yet there is a conviction that some demand has been frozen by uncertainty over prices. Increasingly discussion of wage reductions is being bracketed with prices. There is some basis at Detroit for believing demand for automotive steel has been checked by the possibility of developing concessions commensurate with diminished labor costs.

Steel producers are loath to lower wages unless assured it will restore confidence and stimulate buying. At the moment, the tendency is to extend current quotations on practically all products. Stripmakers are endeavoring to hold recent gains, and wiremakers to consolidate their recent $2 rise to jobbing interests.

Meanwhile, after being stationary for four weeks, STEEL'S iron and steel composite has eased off 1 cent, to $31.03. The finished steel composite holds at $48.72, but the scrap composite has receded 4 cents to $8.83, reflecting a milder tone at Pittsburgh.

Line pipe demand displays a slight flurry this week, through the placing of 35,000 tons for the Stanolind Pipe Line Co. and 7000 tons for a New England line for Standard Oil of New York, with 12,000 tons pending for a Standard Oil of New York project, and 12,000 tons for lines in Nebraska.

Structural steel awards this week are running well ahead of last week, the total, 36,072 tons, comparing with 20,184 tons, and 27,288 tons a year ago. Outstanding awards include 8000 tons for bridges over the Atchafalaya river in Louisiana.

Inquiry for 1932 rails is developing slowly, the Chesapeake & Ohio coming into the market this week for 30,000 tons, against 58,000 tons a year ago, and the Delaware & Hudson, for 8200 tons. It may be Nov. 1 before the bulk of track material for next year has advanced to the buying stage.

Pig iron shipments are continuing to advance over the August rate, the gain coming mainly from the automotive industry; but there is a persistent dearth of forward contracting. The movement of foundry coke also appears more active. Trading in scrap is light.

Composite Market Averages

	This Week (Sept. 16)	Last Week (Sept. 9)	One Month Ago (Aug., 1931)	Three Months Ago (June, 1931)	One Year Ago (Sept., 1930)	Ten Years Ago (Sept., 1921)
Iron and Steel Composite	$31.03	$31.04	$31.05	$31.02	$32.65	$35.34
Finished Steel Composite	48.72	48.72	48.72	48.60	50.87	54.73
Steelworks Scrap Composite	8.83	8.87	8.70	8.84	12.81	10.97

Iron and Steel Composite:—Pig iron, billets, slabs, sheet bars, wire rods, pipe, tin plate, nails, sheets, plates, shapes, bars. **Finished Steel Composite:**—Plates, shapes, bars, sheets, hot strip, nails, wire, tin plate, pipe. **Steelworks Scrap Composite:**—Melting steel, compressed sheets.

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for This Week, Last Month, Three Months and One Year Ago

	Sept. 16, 1931	August 1931	June 1931	Sept. 1930
PIG IRON				
Bessemer, del. Pittsburgh	$18.26	18.26	18.26	20.13
Basic, valley	17.00	17.00	17.00	17.75
Basic, eastern del. eastern Pa.	16.50	16.75	17.00	17.90
No. 2 foundry, del. Pittsburgh	18.26	18.26	18.26	19.13
No. 2 foundry, Chicago	17.50	17.50	17.50	17.50
*Southern No. 2, Birmingham	12.00	12.00	12.00	14.00
**No. 2X, Virginia furnace	18.25	18.25	18.25	18.25
**No. 2X, Eastern del., Phila.	17.26	17.51	17.76	19.76
Malleable, valley	17.00	17.00	17.00	18.35
Malleable, Chicago	17.50	17.50	17.50	17.50
Lake Superior, charcoal, del. Chi.	25.04	27.04	27.04	27.04
Gray forge, del. Pittsburgh	17.63	17.63	17.63	18.50
Ferromanganese, del. Pittsburgh	89.79	89.79	89.79	103.79

*1.75 to 2.25 silicon. For local delivery. Northern shipments based on $11, Birmingham. **2.25 to 2.75 silicon.

COKE				
Connellsville furnace, ovens	2.40	2.40	2.40	2.60
Connellsville foundry, ovens	3.25	3.25	3.25	3.50
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngs.	29.00	29.00	29.00	31.00
Sheet bars, open-hearth, Pitts.	29.00	29.00	29.00	31.00
Billets, open-hearth, Pittsburgh	29.00	29.00	29.00	31.00
Wire rods, Pittsburgh	35.00	35.00	35.00	36.00

	Sept. 16, 1931	August 1931	June 1931	Sept. 1930
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.60	1.60	1.65	1.60
Steel bars, Chicago	1.70	1.70	1.70	1.70
Steel bars, Philadelphia	1.89	1.89	1.94	1.89
Iron bars, Chicago	1.70	1.70	1.70	1.75
Shapes, Pittsburgh	1.60	1.60	1.65	1.60
Shapes, Philadelphia	1.76	1.76	1.76	1.86
Shapes, Chicago	1.70	1.70	1.70	1.70
Tank plates, Pittsburgh	1.60	1.60	1.65	1.60
Tank plates, Philadelphia	1.80½	1.80½	1.85½	1.80½
Tank plates, Chicago	1.70	1.70	1.70	1.70
Sheets, No. 10 blue anneal., Pitts.	1.85	1.85	1.85	2.10
†Sheets, No. 24, hot, ann., Pitts.	2.40	2.40	2.15	2.40
Sheets, No. 24, galvan., Pitts.	2.90	2.90	2.80	3.00
Sheets, No. 10 blue anneal., Chi.	2.00	2.00	2.00	2.15
†Sheets, No. 24, hot, ann., Chi.	2.55	2.55	2.40	2.60
Sheets, No. 24 galvan., Chi.	3.05	3.05	2.95	3.25
Plain wire, Pittsburgh	2.20	2.20	2.20	2.30
Wire nails, Pittsburgh	1.90	1.90	1.80	2.00
Tin plate, per base box, Pitts.	5.00	5.00	5.00	5.25

†Comparisons are with old classification No. 24 black sheets.

SCRAP				
Heavy melting steel, Pitts.	$10.75	10.70	10.30	15.70
Heavy melting steel, eastern Pa.	8.75	8.55	8.75	13.00
Heavy melting steel, Chicago	8.00	8.25	8.50	12.25
No. 1 wrought, eastern Pa.	9.75	9.75	10.00	14.25
No. 1 wrought, Chicago	8.00	8.25	8.25	11.25
Rails for rolling, Chicago	10.50	10.50	10.90	14.50

Sheets

Larger Automotive Demands Expected in October — More Mills Reaffirm Prices

SHEET PRICES, PAGE 51

Pittsburgh—Sheet producers will continue present prices in the fourth quarter. No formal announcements have been made and inquiry for that period so far is light. Present quotations have been tested on only small lots this quarter, but have been fairly steady. Prices continue 2.40c, Pittsburgh, for hot-rolled annealed sheets; 2.90c for galvanized; 1.85c for blue annealed, and 3.10c for autobody. Recent specifications and new business lack improvement. Activity since the first of the month has done little more than hold to the dull August rate. Demand anticipated from the automotive industry has failed to develop. Little is looked for in that direction before October. Mill operations are unchanged at 30 to 35 per cent.

New York—A mild increase is noted in sheet buying. Sellers are hopeful there will be further gains as the month progresses, although little future contracting is expected. This is based largely on the assumption that most of the tonnage bought at the beginning of this quarter has been consumed. Prices are firm.

Philadelphia—Sheet buying is spotty, no general improvement being noted. Sellers are confident of some betterment before October, although little future contracting is expected. Prices are unchanged.

Youngstown, O.—Steel sheet manufacture in this district has increased 8 to 10 per cent this week. This improvement appears due to a broader miscellaneous demand. New automotive requirements are not appearing in volume. This leads mill managers here to suspect that new models will be slower in coming out this autumn than appeared likely several weeks ago. Some large general consumers are beginning to inquire for fourth quarter. Shipments this week are likely to expand moderately. A feature just now is the trucking of automotive sheets from northern Ohio mills into automotive centers to the westward. Quotations on all grades are firm.

Cleveland—Orders and specifications for sheets about hold their own, indicating little improvement. The leading independent has announced its fourth quarter prices, but because of a lack of interest in that period other mills are deferring announcement. It is confidently expected that the same prices will be observed generally. The large buyers are the ones most conspicuously absent. Occasional orders of a fill-in character appear from the automobile plants. In line with the Chevrolet policy of taking inventory at this period, it is expected the local Fisher Body plant will be affected shortly.

Cincinnati—New business shows a small increase over recent weeks, reflecting better automotive specifications. Production schedules remain under 40 per cent.

Chicago—Sheet producers have opened books for fourth quarter on the basis of the extended third quarter prices, which remain untested for contract business. Carload buying prevails, while some jobbers are buying in less-carload quantities. Not much prospect is seen for early orders from tractor and implement makers. Galvanized sheets are reported steady on the basis of 3.00c, Gary and Indiana Harbor. Operations are about 40 per cent, with five of the ten Milwaukee mills active.

St. Louis—Sentiment in the sheet market has improved slightly since the first of September. Some new orders have been booked, fairly diversified, and indicating scant reserves. Specifications have held up well.

Birmingham, Ala.—Principal demand for sheets is coming from the building industry. Mills continue operating at about 50 per cent. Prices are steady.

Current Finished Steel Prices

Prices in cents per pound unless otherwise stated

Steel Sheets

HOT ROLLED No. 10

Pittsburgh base	1.70c
Gary, Ind. Harbor, base	1.80c
Chicago, del.	1.85c
Philadelphia, del.	1.99c
Birmingham, base	1.85c

BLUE ANNEALED No. 9-10

Pittsburgh, base	1.85c
Chicago, district mills	1.95c
Chicago, delivered	2.00c
Philadelphia, del.	2.14c
St. Louis, delivered	2.20½c
Birmingham	2.00c to 2.05c
San Francisco, c.i.f.	2.50c

HOT ROLLED ANNEALED No. 24

Pittsburgh, base	2.40c
Gary, Ind. Harbor, base	2.50c
Chicago, del.	2.55c
Philadelphia, del.	2.69c
Birmingham, base	2.55c
St. Louis, del.	2.75½c

GALVANIZED No. 24

Pittsburgh, base	2.90c
Gary, Ind. Harbor, base	3.00c
Chicago, del.	3.05c
Philadelphia, base	3.19c
Birmingham, base	3.05c
St. Louis, del.	3.25½c

AUTOMOBILE No. 20

Pittsburgh, base	3.10c

FURNITURE

Pitts., No. 10 heavy	2.75c
Pitts., No. 20 light	3.35c

TIN MILL BLACK No. 28

Pittsburgh, base	2.65c
Gary base	2.75c
St. Louis, el.	2.90½c

HEAVY COLD ROLLED No. 10

Pittsburgh base	2.35c
Gary, Ind. Harbor, base	2.45c
Chicago, del.	2.50c
Philadelphia, del.	2.64c
St. Louis, del.	2.70½c

COLD ROLLED No. 20

Pittsburgh, base	2.95c
Gary, Ind. Harbor, base	3.05c
Chicago, del.	3.10c
Philadelphia, del.	3.24c
St. Louis, del.	3.30½c

Tin and Terne Plate

Prices per 100 pound box Pittsburgh

Tin plate, coke base	$5.00

Gary, Ind., base 10 cents higher.

Long ternes, 24, unassorted, lb.	3.15c

Wire Products

(To Jobbers-Merchant Trade)

F.o.b. mills, 100 lb. keg

Standard wire nails	$1.90 and 2.00
Cement coated nails	1.90 and 2.00
Galvanized nails	3.90 and 4.00

(Per pound)

Polished staples	2.35c and 2.45c
Galvanized staples	2.60c and 2.70c
Barbed wire, gal.	2.55c and 2.65c
Annealed fence wire	2.35c and 2.45c
Galvanized wire	2.80c and 2.90c
Woven wire fencing, (9-11 ga.)	$55.00 and $60.00
(12½ ga. and lighter)	60.00 and 65.00

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.20c
Spring wire	3.20c

Joliet, DeKalb, Waukegan, Ill., Anderson, Ind., Chicago, $1 over Pitts.-Cleve.; Duluth and Worcester, Mass., $2 higher; Fairfield, Ala., $3 higher.

Rivets

Struc. c.l., Pitts.-Cleve.	2.50c
Struc., c.l., Chicago	2.60c
7/16-in. smaller, Pitts.	70, 10 and 5 off
Chi., Cleve.	70, 10 and 5 off

Steel Plates

Pittsburgh, base	1.60c
Philadelphia, del.	1.80½c
New York, delivered	1.88c
Boston, delivered	2.00c
Chicago, base	1.70c
Cleveland, base, for railroads	1.65c
Lackawanna, N. Y., base	1.70c
Birmingham, base	1.75c to 1.80c
Coatesville, Pa., base	1.70c
Pacific Coast, c.i.f.	1.85c to 1.95c
St. Louis, del.	1.95½c

Structural Shapes

Pittsburgh, base	1.60c
Philadelphia, del.	1.76c
New York, del.	1.85½c
Boston, del.	1.98½c
Chicago, base	1.70c
Cleveland, delivered	1.78½c
Lackawanna, N. Y., base	1.70c
Birmingham base	1.75c to 1.80c
Pacific Coast, c.i.f.	2.05c to 2.15c

Bars

SOFT STEEL

Pittsburgh, base	1.60c
Chicago, base	1.70c
Birmingham base	1.75c to 1.80c
Lackawanna, N. Y., base	1.70c
Pacific Coast, c.i.f.	2.00c
Cleveland, base, local del.	1.65c
Cleveland base, out. del.	1.65c
Philadelphia, del.	1.89c
New York, del.	1.93c
Boston, del.	2.00c
Pittsburgh, cold finish	1.85c
Pittsburgh, forg. qual.	1.90c

RAIL STEEL

Chicago Heights	1.60c
Eastern mills	1.30c to 1.35c
Pittsburgh	1.30c to 1.35c

IRON

Chicago, base	1.70c
New York, delivered	1.93c to 2.03c
Philadelphia, delivered	1.89c to 1.99c
Pittsburgh, refined	2.75c to 4.25c

REINFORCING

Pitts., billet cut lengths	1.75c
Stock lengths, mill	1.60c
Chi., billet	1.60c to 1.80c
Chi., rail steel	1.35c to 1.60c
Chi., rail steel, bridge and culvert	1.60c to 1.65c
Philadelphia, cut lengths	2.04c
Cleveland, cut lengths	1.75c to 1.80c

Cold Finished Bars, Shafting

Base, Pittsburgh, Chicago, Buffalo and Cleveland	2.10c
Shafting, turned and ground, Pittsburgh, Cumberland, Md.	2.45c to 2.90c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot strip	19c	20.5c	23c	28c
Cold strip	28c	29.5c	32c	37c

Carbon 0.12 and under; no nickel. A has chrome 15% and under, B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Wrought Washers

Carloads, Pitts. dist.	$6.50 to $6.75 off
Carloads, Chicago dist.	7.00 to 7.45 off

Alloy Steel

Hot Rolled—F.o.b. Mills

Alloy Quality Bars, 2.65c, mill

S.A.E.	Alloy Diff.	S.A.E.	Alloy Diff
2000	0.25	1.25-1.75 Ni.	1.05
2100	0.55	5100 .80 - 1.10 Cr.	0.45
2300	1.50	51.00 Cr. spring	0.20
2500	2.25	6100 bars	1.20
3100	0.55	6100 Spring	0.95
3200	1.35	Cr., Ni., Van.	1.50
3300	3.80	Carbon Van.	0.95
3400	3.80	9250 (flats)	0.25
4100 .15 to .25 Mo.	0.50	9250 (rds.,sq.)	0.50
4600 .20 to .30 Mo.			

Strip, Hoops Bands

Hot strip, to 6-in., Pitts.	1.65c
Do, 6 1/16 to 24-in., Pitts.	1.55c
Hot strip, bands 6 in. and under, Chicago	1.75c
Do, 6 1/16 to 24 in.	1.65c
Cooperage hoop, Pitts.	1.70c to 1.80c
Do, Chicago	1.85c to 1.95c
Cold rolled strip, Pitts., Cleveland	2.15c to 2.25c
Worcester, 3 tons, over	2.30c

Rails, Track Material

Standard bess. and open hearth rails, mill	$43.00
Relay rails, Pitts., 20 to 45 lbs.	$22.00 to $26.00
50 to 75	20.00 to 24.00
80 to 100	24.00 to 27.00
Light rails, 25-45, mills	$34.00
Light rails, Chicago	$36.00
Angle bars, Chi. base	2.75c
Spikes, railroad, mills	2.70c
Spikes, railroad, 7/16-in. and smaller, Pitts.	2.70c
Spikes boat, barge, Pitts.	2.90c
Spikes, railroad, Chi.	2.80c
Track bolts, Pitts., steam roads	3.80c
Do, standard, jobbers	73 off list
Track bolts, Chicago	3.80c
Tie plate, mills	$39.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread ..... 73 and 10 off
Rolled thread ⅜ x 6 and smaller take 10 per cent lower list.
Eagle list ..... 73 and 10 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts ..... 73 and 10 off
Tire bolts ..... 60, 10 and 10 off
Stove bolts, 80, 10, 10, 5 off in pkgs.; 80, 10, 5, 2½ off in bulk.
Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished ..... 73 and 10 off

HEXAGON CAP SCREWS

Milled ..... 80-10-10-5 off
Upset 1 in. diam. and smaller ..... 85-10 off

SQUARE HEAD SET SCREWS

Milled ..... 80-5 off
Upset 1 in. and smaller ..... 80-10-5 off
Upset, larger than 1 in. 80-5off

Cut Nails, Chain, Piling

Cut nails, c.l. Pittsburgh 2.50c
Do, less carloads, 5 kegs or over, 2.75c; less than 5 kegs 2.90c.
Chain, BB, BBB, 9/16-1½ in. ..... 33 1/3 off
Sheet piling, Pitts. 1.90c

Bars

Present Prices Expected to Be Applied for Fourth Quarter—Little Change in Demand

BAR PRICES, PAGE 51

Chicago—Some fourth quarter sales of bars and other heavy finished products have been made at 1.70c, Chicago. These have established fourth quarter quotations, but usually have represented extensions of contracts covering individual pending projects. Bar mill operations are held at about 30 per cent, largely by deformed bar orders and scattered miscellaneous manufacturing demand, the latter being devoid of any trend toward improvement. Heavy shipments of deformed bars will be needed to complete the season's highway and grade separation construction in the North Central states. Road machinery builders may not share prominently in fresh highway business this year, as the season's run for that industry is nearly completed. One of the implement works is resuming on light schedule.

Philadelphia — Commercial steel bars show the greatest strength of the three major steel products. The market is 1.60c, Pittsburgh, with the likelihood books for fourth quarter will be opened late this month at the same figure. There is little activity. Common iron bars are 1.60c to 1.70c, Pittsburgh.

Pittsburgh—Steel bar demand is quiet and unchanged, with few signs appearing of increased business from leading consumers. Automotive demand is at a low ebb and is not expected to turn upward until next month. Producers defer announcement of a fourth quarter price, but are expected to continue the current market of 1.60c, Pittsburgh.

Youngstown, O.—A somewhat better demand for common steel bars is reported this week, the expansion coming from various sources and no one line especially insistent. Some pickup in concrete bars is noted for road work and building purposes, while smaller industries which are consumers of common bars also seem to have expanded their consumption somewhat. Common steel bars are 1.60c, Pittsburgh.

Cleveland—Mill order books have been augmented weekly since September began, though the upturn has been of extremely light proportions for all interests in aggregate. Mill rollings are still of a deferred character with delivery dates, even on popular sizes, becoming more delayed. The 1.65c, Cleveland, base on merchant steel bars is quoted for both local and outside delivery.

Cold-Finished Needs Slow; Price Probably Extended

Cold Finished Prices, Page 51

Pittsburgh—Cold-finished steel bar business is practically unchanged from the August rate and little improvement in automotive buying is looked for before October. Prospective new models are expected to result in heavier business at that time. Producers have made no formal announcement regarding fourth-quarter prices but it is understood business will be accepted for that period on the basis of the current market of 2.10c, Pittsburgh.

Cleveland—Specifications display little change, if anything tending to the weak side compared to the rate over the preceding several weeks. Fourth-quarter interest is absent though the present quotable level of 2.10c, Cleveland, may be expected to prevail.

Plates

Prices Extended for Fourth Quarter—Sales Light—Western Tank Work More Promising

PLATE PRICES, PAGE 51

Chicago—Prospective business in plates centers on the oil storage tank outlook, particularly in the East Texas field, which again gives promise of new orders. About 2600 tons is on inquiry from the Mid-Continent field. Plates are being quoted for fourth quarter at 1.70c, mills. No new tank plate orders are noted, and miscellaneous manufacturing demand remains light.

Twelve thousand tons of plates will be supplied by mills in this district for the National Tube Co. and A. O. Smith Corp.'s share of 36,000 tons of plates for pipe awarded by the Stanolind Pipe Line Co. to these two companies, the Youngstown Sheet & Tube Co., and Republic Steel Corp.

New York—The market for plates is quiet and prices are unchanged. The Newport News Shipbuilding & Dry Dock Co. has been awarded two boats for the Colombian Steamship Lines, each requiring 3600 tons of steel, mainly plates. The New Haven, Lehigh Valley and Rutland railroads are inquiring for fourth quarter requirements.

Philadelphia — The market for plates is quiet, and easy at 1.70c, base, Coatesville, Pa. Universal plates show a softer tendency than sheared plates. Eastern mills have not opened books for fourth quarter but word has gone out informally in certain instances that present prices will be continued. The Sun Shipbuilding & Dry Dock Co. is reported low on one of two vessels for Seatrain Lines Inc., Philadelphia, requiring in all 11,200 tons of rolled steel, mainly plates. The New York Shipbuilding Co. is low on the other. Much interest centers on the opening of bids Sept. 16 for 11 destroyers requiring 11,000 tons of rolled steel, two-thirds of which are plates.

Pittsburgh—Plate demand is being received in small lots from miscellaneous consumers, while shipments to the larger outlets are restricted. A fair volume of small inquiries for river equipment are out.

Cleveland—Scattered small orders continue to hold sales at a bare minimum. Little forward purchasing is developing, and mills have not formally announced fourth-quarter prices. In the meantime 1.60c, Pittsburgh, holds. Pending tonnage continues large, but when the orders will be placed is a matter of conjecture. Tests will be conducted on sheet piling from three different mills before award is made on the 950 tons for the Jamestown, Pa., dam.

Contracts Placed

250 tons, 14 pontoons, for United States engineers, Memphis district, to St. Louis Structural Steel Co., St. Louis.

200 tons, two barges, for Pure Oil Co. to Chicago Bridge & Iron Works, Chicago, and Alabama Dry Dock & Shipbuilding Co., Mobile, Ala.

200 tons, oil barge, for Atlantic Refining Co., to McClintic-Marshall Corp.

Unstated tonnage, 500,000-gallon tank tower, Glencoe, Ill., to Chicago Bridge & Iron Works, Chicago.

Contracts Pending

11,200 tons steel, mainly plates, two vessels, Seatrain Lines Inc., Philadelphia; Sun Shipbuilding & Dry Dock Co., low on one, and New York Shipbuilding low on the other.

7200 tons of steel, mainly plates; two vessels placed by Colombian Steamship Lines with Newport News Shipbuilding & Dry Dock Co.

Unstated tonnage, three 118,000-barrel oil tanks for Texas Co., Port Arthur, Tex.

More Iron Ore Vessels Idle; Demands Modified

Iron Ore Prices, Page 62

Cleveland—More Great Lakes iron ore vessels are being taken out of service in a persistent effort by shippers to reduce stocks. The Pittsburgh Steamship Co., United States Steel Corp. subsidiary, which dropped seven from its active list a month ago, took off two more last week, and now is operating 50 of its 86 vessels. Independent shippers also have made further retrenchments, and pending a new count, it is estimated that not more than 170 of the total Great Lakes fleet, comprising 328 units, now are active. The market for ore has not improved with the approach of fall. Some producers report a reduction in tonnage which consumers indicated they would need, amounting in one instance to 250,000 tons.

Lake Erie stocks Sept. 1 were within 144,975 gross tons of the level last year. The total was 5,685,751 tons, according to the Lake Superior Iron Ore association. The report on receipts at, and shipments from, Lake Erie ports for the season to Sept. 1 follows:

	Receipts	Shipments	Dock balance Sept. 1
Buffalo	627,814	13,882	3,326
Erie	275,245	252,720	84,154
Conneaut	2,478,171	2,526,306	1,751,171
Ashtabula	1,300,946	1,306,937	2,016,713
Fairport	648,224	646,114	403,158
Cleveland	2,262,699	1,697,302	969,997
Lorain	1,057,520	540,643	118,695
Huron	262,583	262,772	321,796
Toledo	484,150	332,267	16,741
Total	9,397,352	7,578,943	5,685,751
One year ago	21,683,307	16,186,011	5,540,776

In the receipts at other than Lake Erie furnaces, it is noted 140,768 tons has been shipped through the new Welland canal to Port Hamilton, Ont. Rail shipments of ore transferred from vessel to car at Point Edward, Ont., at the lower end of Lake Huron, apparently have ceased. Following are the receipts:

	Tons
Detroit	560,664
Indiana Harbor	796,795
Gary	1,745,258
South Chicago (local)	2,062,978
South Chicago (interior)	100,595
Sault Ste. Marie, Ont.	175,756
Hamilton, Ont.	140,768
Total	5,582,814
One year ago	9,804,423

Railroads

Chesapeake & Ohio Rail Inquiry 30,000 Tons Out—Mill Releases Off Moderately

TRACK MATERIAL PRICES, PAGE 51

New York—Buying and inquiry of railroad equipment continues light. A few bids are being taken for one or two units for navy yards. Pacific Fruit Express has ordered steel for 500 underframes from the Consolidated Steel Corp., Los Angeles, the cars to be built at the company's own shops, but it is unknown whether the underframes are for new or rebuilt refrigerator cars.

Norfolk & Western is taking bids Sept. 30 on fourth-quarter locomotive tires and wrought steel wheels.

Pittsburgh—New York Central railroad closed bids Sept. 14 on steel, including 2300 tons of plates, shapes and bars, to be used in construction of 300 freight cars in its own shops.

Cleveland—Chesapeake & Ohio is out with its 1932 rail inquiry calling for 30,000 tons, compared with 58,000 tons last year. Day-to-day orders from the railroads continue to be so small as to be negligible. In many specific instances maintenance work is being neglected in the railroads' efforts to report on operating figure in black ink.

Chicago—Brisk releases for steel rails and track fastenings of the last 30 days have fallen off moderately, and it is indicated existing rail mill operations of about 25 per cent will suffice for September specifications. A carrier that had held up track fastening specifications for some time has released several thousand tons of spikes, bolts, tie plates and angle bars. Outside of budget estimates by the Pennsylvania, Chesapeake & Ohio and several other roads, no definite information is available on rail buying, which is expected to get under way only moderately by about Nov. 1.

Car Orders Placed

Canadian Pacific, two gasoline-electric rail motor cars, to Ottumwa Car Mfg. Co., Ottawa, Kans.

Pacific Fruit Express, 500 underframes, to be built in own shops. Not known whether underframes are for new or rebuilt refrigerator cars.

United States navy department, one 30-ton flat car for Philadelphia, to Koppel Industrial Car & Equipment Co., Pittsburgh.

United States navy department, one helium compressor car, to J. G. Brill Co., Philadelphia, through Hardie-Tynes Mfg. Co., Birmingham, Ala.

Locomotives Pending

Navy department, Washington, one gasoline-electric locomotive for Lakehurst, N. J.; bids Sept. 22.

Rail Orders Pending

Chesapeake & Ohio, 30,000 tons.

Delaware & Hudson, 8200 tons.

Seattle municipal street railway, 500 tons open-hearth steel girder rails; bids Sept. 18.

Tin Plate Requirements Point to Light Operations

Tin Plate Prices, Page 51

Pittsburgh—Curtailment in packing of leading vegetable crops appears likely to be substantial, and the outlook for any material improvement in tin plate demand is dull. Considerable material already has been produced in anticipation of near future requirements of canmakers so that there is little occasion for increased operations to accommodate tin plate demand over the next 30 days.

Bolt and Nut Production Brings No Added Buying

Bolts, Nuts, Rivets Prices, Page 51

Pittsburgh—Bolt, nut and rivet sales are slow to develop an upward tendency, although specifications so far this month for some interests are slightly ahead of comparable August volume. Orders in all cases are limited to minimum lots for immediate needs. Operations continue around 30 per cent. Prices are unchanged since the recent reduction of large rivets to 2.50c, Pittsburgh, while bolts and nuts are 73 and 10 off.

New York—Some contracting in rivets is being done on the new and lower price of 2.50c, Pittsburgh; also, in bolts and nuts at the unchanged discount of 73 and 10. In general, however, business is exceedingly slow.

Philadelphia—Bolts and nuts are in small demand and easy at 73 and 10 off and rivets at 2.50c, Pittsburgh.

Chicago—All producers of large structural rivets are following the lead of eastern makers in quoting a reduction of $5 a ton, or 2.60c, Chicago, for carload business. Small rivets remain at 70, 10 and 5 off.

Structural Shapes

Bids Submitted, 60,000 Tons, For New Orleans Bridge—Prospects Good at Chicago, New York—Mill Prices Fairly Steady—Awards Are Average at 36,072 Tons

STRUCTURAL SHAPE PRICES, PAGE 51

New York — General contract awards feature a heavy volume of pending structural work. Turner Construction Co. is low on the general for the Port Authority inland freight terminal which will take approximately 22,500 tons of shapes and bars. William Kennedy Construction Co. has been awarded contract for the Bronx county courthouse, 7700 tons. General contracts have also been closed on several other attractive projects on which early action is expected.

Three schools, taking close to 1500 tons, are about to be placed. Fort Pitt Bridge Works Co. will fabricate more than 8200 tons for a section of the northern New Jersey highway viaduct, Taylor-Fichter Steel Construction Co. steel contractor.

Philadelphia—Shapes are 1.76c, Philadelphia, subject to occasional concession. Award of 3500 tons for track and platform supports for the Pennsylvania railroad here to McClintic-Marshall is outstanding.

Cleveland—Structural inquiry continues with only occasional small lots. Fort Pitt Bridge Works Co. took several small jobs this week locally. The Clarksburg, W. Va., courthouse has been placed. Mt. Vernon Bridge Co. shared in the 8000 tons for two bridges over the Atchafalaya river, La. Mill prices on plain shapes are based on 1.60c, Pittsburgh.

New Orleans—Bids closed Sept. 15 on four contracts, Nos. 3, 4, 5 and 6 covering the construction of the combined railroad and highway bridge over the Mississippi river here. Most of the 58,700 tons of steel involved is structural shapes. Ralph Modjeski, New York, has been named consulting engineer for the project.

Chicago—Structural prospects remain favorable, despite the fact that some of the pending work will be further postponed. Structural mill operations are about 35 per cent. A few additional contracts for plain material have been extended at 1.70c, Chicago, some of these through fourth quarter. About 16,000 tons of bridge work, approaches, grade separation and waterway construction has become active through the reopening of bids in Illinois for $7,000,000 in work that had to be postponed earlier in the season. Local fabricators have submitted bids on 60,000 tons for the Harbor Belt Line railroad at New Orleans. Two school projects totaling 4000 tons are before the market.

Contracts Placed

8000 tons, bridges, Atchafalaya river, Morgan City and Krotzsprings, La., to Mt. Vernon Bridge Co., Mt. Vernon, O., and Nashville Bridge Co., Nashville, Tenn., through Foundation Co., contractor.

4091 tons, girder spans, route 46, Cook county, Ill., to Duffin Iron Works, Chicago.

3500 tons, track and platform supports, main station, Pennsylvania railroad, Philadelphia, to McClintic-Marshall Corp., Bethlehem, Pa.

2000 tons, east approach to Illinois river bridge, Peoria, Ill., for Illinois state highway department, to Duffin Iron Works, Chicago.

2000 tons, 4-story armory, Jersey City, N. J., to Oltmer Iron Works, Jersey City, on readvertised bids.

1260 tons, postoffice, Little Rock, Ark., to Virginia Bridge & Iron Co., to be shipped from Memphis; R. P. Farnsworth & Co., Inc., New Orleans, contractor. Reported as 1200 tons in STEEL, Sept. 10.

1000 tons, Presbyterian hospital, New York, to Lehigh Structural Steel Co., Allentown, Pa., through Marc Eidlitz & Son, contractors.

1000 tons, Wills eye hospital, Philadelphia, to American Bridge Co., Pittsburgh.

910 tons, building, Columbia university, New York, to Lehigh Structural Steel Co., Allentown, Pa.

815 tons, piers and ore dock, Chicago, for Mead-Morrison Mfg. Co., to McClintic-Marshall Corp., Bethlehem, Pa.

760 tons, public health building, Washington, to American Bridge Co., Pittsburgh.

620 tons, courthouse, Clarksburg, W. Va., to McClintic-Marshall Corp., Bethlehem, Pa., through Hutter Construction Co., Fond du Lac, Wis.; Walker & Weeks, Cleveland, architects.

600 tons, St. Mary's academy, Monroe, Mich., to Palmer-Bee Co., Detroit.

590 tons, Winchester avenue viaduct, Ashland, Ky., to McClintic-Marshall Corp., Bethlehem, Pa.

578 tons, state highway bridge R. C. 2200, North Blenheim, Schoharie county, N. Y., to Fort Pitt Bridge Works Co., Pittsburgh; 45 tons reinforcing steel to Albany Steel & Iron Supply Co., Albany; Spooner Bridge Construction Corp., Albany, contractor.

545 tons, New York state highway bridge RC 2200, to Fort Pitt Bridge Works Co., Pittsburgh.

500 tons, building, Freedom Oil Co., Freedom, Pa., to Pittsburgh Bridge & Iron Works, Rochester, Pa.

500 tons, high school, Quincy, Ill., to Michelmann Steel Construction Co., Quincy, Ill. Previously reported in error to Rock Island Bridge & Iron Co.

500 tons, miscellaneous steel, Safe Harbor Water Co. development, Safe Harbor, Pa., to Bartlett-Hayward Co., Baltimore.

500 tons, power house, King's county hospital, Brooklyn, N. Y., to American Bridge Co., Pittsburgh, through Wills, Taylor & Mafera Corp., New York, contractor; reported in STEEL, Sept. 10 as 5000 tons in error.

485 tons, garage, 131st street, New York, to Lehigh Structural Steel Co., Allentown, Pa.

450 tons, public school No. 49, Middle Village, Queens, N. Y., to Easton Structural Steel Co., Easton, Pa., through Supreme Construction Co., contractor.

400 tons, bridge, Yazoo river, Fort Loring, Miss., to Virginia Bridge & Iron Co., Roanoke, Va.

400 tons, department store for Hutzler Bros., Baltimore, to Dietrich Bros., Baltimore, through Consolidated Engineering Co., contractor.

375 tons, First National Bank building, Ithaca, N. Y., to American Bridge Co., Pittsburgh; George A. Fuller Co., contractor.

330 tons, conveyors, St. Nicholas, Pa., to American Bridge Co., Pittsburgh.

300 tons, building, Yale university, New Haven, Conn., to Bethlehem Fabricators Inc., Bethlehem, Pa., through Marc Eidlitz, contractor.

300 tons, building, Duke university, Durham, N. C., to Dietrich Bros., Baltimore.

300 tons, state highway bridge, Pennsylvania, to American Bridge Co., Pittsburgh.

300 tons, plant for Vermont Marble Co., San Francisco, to Western Iron Works, San Francisco.

250 tons, addition to power plant, Notre Dame university, South Bend, Ind., to Edwards Iron Works, South Bend, Ind.

235 tons, Old South church chapel and parish house, Boston, to New England Structural Co., Boston.

225 tons, state highway bridge, Massachusetts, to New England Structural Steel Co., Boston.

200 tons, girl's school, Berri street, Montreal, Que., to George W. Reid & Co., Toronto, Ont.

200 tons, warehouse, Great Atlantic & Pacific Tea Co., Hawthorne, N. J., to Austin Co., Cleveland.

200 tons, bridge for Wabash railroad, Riverton, Ill., to American Bridge Co., Pittsburgh.

187 tons, highway bridge, Logan county, Ill., to Continental Bridge Co., Chicago.

180 tons, addition, Lycoming Mfg. Co., Williamsport, Pa., to Bethlehem Con-

Awards Compared

	Tons
Awards this week	**36,072**
Awards last week	**20,184**
Awards two weeks ago	**104,273**
Awards this week in 1930	**27,288**
Av. weekly awards, 1930	**35,242**
Av. weekly awards, 1931	**36,507**
Av. weekly awards, August	**20,024**
Total awards to date, 1930	**1,371,466**
Total awards to date, 1931	**1,387,258**

struction Co., Bethlehem, Pa.
175 tons, New York state highway bridge RC 2201, to Lackawanna Steel Construction Co., Buffalo.
165 tons, veterans' hospital building, Albuquerque, N. M., to Darbyshire-Harvie Co., El Paso, Tex.; Murch Bros. Construction Co., St. Louis, contractors.
150 tons, office building, Drolet street, Montreal, Que., to Canadian Vickers Ltd., Toronto, Ont.
150 tons, pier No. 38, San Francisco, to California Steel Co., Oakland, Calif.
150 tons, including the following: 75 tons, lunch room, Standard Oil Co. of Ohio plant No. 1; 40 tons, Mahler Realty Co. building; 35 tons, bridge, Erie railroad, all located in Cleveland, to Fort Pitt Bridge Works Co., Pittsburgh.
150 tons, bridge over Embarrass river, Wis., to Milwaukee Bridge Co., Milwaukee.
150 tons, highway bridge, Fulton county, Ill., to Clinton Bridge Works, Clinton, Iowa.
140 tons, state bridge, Great Barrington, Mass., to Haarman Steel Co., Holyoke, Mass.
140 tons, novitiate, Burlingame, Calif., to McClintic-Marshall Corp., Bethlehem, Pa.
126 tons, shapes and bars, school for clayworking and ceramics, Alfred university, Alfred, N. Y.; 73 tons to Rogers Structural Steel Co., Corry, Pa., and 53 tons to Truscon Steel Co., Youngstown, O.; D. Elander Inc., Jamestown, N. Y.
125 tons, flood-light towers, George Washington bridge, New York, and toll booths, Kill van Kull bridge, Staten Island-Bayonne, N. J., to Maxwell Spiro & Co., Jersey City; Auf de Heide Construction Co., West New York, N. J., contractor.
125 tons, state highway bridge, Outagamie county, Wis., to Milwaukee Bridge Co., Milwaukee.
120 tons, two bridges, Quincy, Mass., to Boston Bridge Co., Boston.
100 tons, bank, New Haven, Conn., to New England Iron Works, New Haven, Conn., through Hageman-Harris Co., contractor.
100 tons, hangar for Thompson Aeronautical Corp., municipal airport, Chicago, to Wendnagel & Co, Chicago.
100 tons, garage, Seaton street, for *Evening Telegram*, Toronto, Ont., to Dominion Bridge Co., Lachine Locks, Que.
100 tons, addition to federal prison, McNeil island, Wash., to Hofius Steel & Equipment Co., Seattle.
100 tons, ferry shed, Whitehall terminal, New York, to D. & M. Steel Construction Co.; Court Construction Co., contractor.
100 tons or more, St. Jacques parochial school, Taunton, Mass., to John E. Cox Co. Inc., Fall River, Mass.; L. M. Witherell & Sons, Taunton, contractors.
100 tons, addition, Sattler store, Buffalo, to Ernst Iron Works, Buffalo.
100 tons, mostly piling concrete encasement, piers, Riverton, Pa.-Belvidere, N. J., bridge, to F. H. Clement & Co., Bethlehem, Pa.
100 tons or more, school, Campbell, N. Y., to F. L. Heughes Co., Rochester, N. Y.; Lowman Construction Co., Elmira, N. Y., contractor
Unstated tonnage, extension western division, Montreal, Que., general hospital, to Dominion Bridge Co., Lachine Locks, Que., at $150,000.

Contracts Pending

3000 tons, aircraft shop, San Antonio, Tex.; bids Sept. 24.
2000 tons, postoffice, Hartford, Conn.; Coath & Goss, Chicago, low.
2000 tons, Rembrandt high school, Chicago; bids Sept. 18.
1400 tons, post office, Hartford, Conn.
1050 tons, lift bridge, Buffalo river, Buffalo, to take bids about Oct. 10; Edward P. Lupfer Corp., Buffalo, designer.
1000 tons, addition, University avenue, Toronto, Ont., for Ontario Hydro Electric Power commission.
800 tons, pavilions A, B, C and D farm colony, Staten Island (New York), third bids closed Sept. 14, first contract forfeited, second bids rejected.
625 tons, sheet steel piling, San Gabriel river outlet for Los Angeles county, Calif.; bids opened.
600 tons, building for *Wall Street Journal*, New York; Lockwood-Green Co., engineer.
550 tons, two story, junior and senior high school, Chancellor avenue, Newark, N. J., Maxwell Spiro & Co., Jersey City, N. J., low on steel.
500 tons, high school, Jamestown, N. Y.
500 tons, sand and gravel plant, for Six Companies, Boulder City, Nev.; bids to be called for at once.
500 tons, municipal power house, Wyandotte, Mich.
450 tons, grade separation work, Elmhurst, Ill.; general contract to Arcole Construction Co., Niles Center, Ill.
350 tons, industrial buildings, New Jersey state prison farm, Bordentown, N. J.
300 tons, piling, for bulkhead with alternate concrete; Florence Pipe & Foundry Co., Florence, N. J., asking for bids.
300 tons, building, Ellis college, Newton Square, Pa.
300 tons, warehouse for R. J. Reynolds Tobacco Co., Louisville, Ky.
276 tons, viaduct over Lehigh Valley railroad and Liberty avenue, route 29, section 1, Hillside township, Union county, N. J.; bids Oct. 7, New Jersey state highway commission, Trenton, A. Lee Grover, chief clerk.
235 tons, wood working plant, Deerfield, Maine.
200 tons, building, du Pont interests, Philadelphia.
100 tons, highway bridge, Alexandria county, Ill.; bids in.
100 tons, grade separation, Bedford, O., for Ohio state department of highways; bids to be taken at Cleveland office Sept. 22.
100 tons, Panama Canal, bids Sept. 4; Frank M. Weaver & Co., Lansdale Pa., low.
100 tons, building, University of Akron, Akron, O.; bids Sept. 25.

Concrete Bars

New York, New Jersey Bridges Active — Illinois Highway Work Will be Shipped This Year—Awards Are Heaviest in 16 Weeks, Led by Chicago Postoffice

REINFORCING BAR PRICES, PAGE 51

New York—Bridges in upstate New York and New Jersey furnish the bulk of fresh inquiry for concrete bars. Close to 1500 tons for a joint sewer at Elizabeth, N. J., has been tentatively placed by the Northern States Contracting Co. A. Gregorio & Co., Mamaroneck, N. Y., is low on section J, Sawmill sewer, Westchester county. Prices on ordinary lots are generally 1.93c delivered, New York, with some concessions on larger orders.

Philadelphia—Placing of 875 tons for a school here and 300 tons in a high school, Pottsville, Pa., features the reinforcing bar market. The market is unsettled at 1.50c to 1.60c, Pittsburgh. Rail steel is 1.30c to 1.35c, eastern mill, nearer the inside figure.

Pittsburgh—Reinforcing bar business so far this month is moderately quieter than during the comparable August period but in view of the volume of inquiry pending the outlook remains fair. Action is deferred on 900 tons for the West End-Northside bridge here. The market is 1.60c for mill lengths.

Detroit—Wayne county board of road commissioners recently took bids on 166,300 pounds of fabricated reinforcing bars. Low bid by Gabriel Steel Co., Detroit, was $2863, f.o.b. trucks. Deducting regular trucking, size and bending extras, this figures back to a base price of 1.48c, f.o.b., Detroit.

Chicago—Reopening of $7,000,000 in Illinois highway, bridge and overhead crossing construction that had been postponed, places much reinforcing bar work before the market that is to be shipped this year. General contracts cover 390 miles of surfacing and six bridges and overhead crossings. Bids will be opened on $2,276,000 additional in the next few

(*Concluded on Page* 59)

Awards Compared

	Tons
Awards this week	**11,239**
Awards last week	**5,649**
Awards two weeks ago	**7,245**
Awards this week in 1930	**3,777**
Av. weekly awards, 1930	**6,990**
Av. weekly awards, 1931	**7,074**
Av. weekly awards, August	**5,274**
Total awards to date, 1930	**256,485**
Total awards to date, 1931	**268,801**

Strip

Fourth Quarter Books Open at Unchanged Prices — Irregular Demand Brings Less Volume

STRIP PRICES, PAGE 51

Pittsburgh—Automotive buying is slow to expand and strip business shows little improvement. Inquiry from automotive interests is limited largely to Ford suppliers and requirements of other interests are light. Fourth quarter books are open at unchanged prices of 1.55c and 1.65c for hot-rolled strip and 2.15c to 2.25c for cold-rolled strip. These quotations are fairly well maintained and some new contracts have been entered. Mill operations are spotty, depending upon the day-to-day volume of business, with the average holding around 20 per cent for hot mills and slightly less for cold mills.

New York—With fourth quarter prices unchanged there is little disposition on the part of strip consumers to contract ahead. Practically all buying is for nearby shipment. A more earnest effort is being made to obtain 2.25c, Pittsburgh, on cold strip in less than carlots. The regular price on carlots is 2.15c, Pittsburgh. Hot-rolled strip is 1.55c and 1.65c, Pittsburgh.

Philadelphia—Hot-rolled strip is sluggish and unchanged at 1.55c and 1.65c, Pittsburgh. Cold-rolled is quoted at 2.15c, Pittsburgh.

Youngstown, O.—Strip mills have received a slightly improved volume of specifications this week from a variety of consuming sources, but this encouragement has not as yet led to expansion in operating facilities. This gain is confined to narrow widths of hot-rolled strip and has not extended to cold-rolled. Quotations are steady for all widths.

Cleveland—Fourth quarter books are now open at the third-quarter levels of 1.55c and 1.65c, Pittsburgh, on wide and narrow hot-rolled strip. Cold-rolled will be attempted at 2.25c on small orders, and $2 a ton lower for more attractive purchases. Over the past week demand has diminished even further. Neither order nor inquiry of import has featured the market.

Chicago—Cold-rolled strip steel specifications dropped off sharply from the preceding week. No interest in contracting is shown, although fourth quarter books have been opened on the basis of 2.15c, Pittsburgh-Cleveland.

A total of 601 tourists from 24 states visited the Minnequa works of the Colorado Fuel & Iron Co., Pueblo, Col., in August. For eight months of this year the visitors have numbered 2695.

Operations, 32 Per Cent, Rebound Off Holiday Low

Pittsburgh—Ingot production is slow to improve over the low level resulting from the holiday interruption and remains at 29 per cent this week. Blast furnace schedules are unchanged with 11 of 54 steelworks stacks active. Finishing mill operations generally are steady with sheets at 30 to 35, tin plate 45 to 50, strip 20 and pipe 25 to 30 per cent.

	Per Cent
Operations this week	32
Operations last week	28
Operations two weeks ago	31
Operations this week, 1930	55
High for 1931, (March 19)	57
Low for 1931, (Sept. 8)	28

Philadelphia—Eastern ingot operations are up one point this week to 31 per cent, with the leading mill unchanged at the same figure. This gain for the district as a whole is the first weekly increase in 28 weeks.

Buffalo — Steelworks operations are off nine points this week to 32 per cent of capacity. This is due to alternate week production schedules at the local Republic Steel plant. There are 12 open hearths making steel in the district.

Youngstown, O.—Steel production is up 13 points over last, as this week commences. Last week began at 28 per sent, was advanced to 40 at the end of the week and present week's schedules began at 41 per cent. Republic Steel activity is unchanged at 35, Sheet & Tube is up 14 points to 34, Carnegie Steel is up five to 50 and Sharon Steel Hoop continues at 34 per cent.

Chicago—Ingot output is up two points to 28 per cent. Finishing mills average around 30, with sheet mills at 40 per cent. Active steelworks blast furnaces number nine of 26.

Cleveland—Ingot activity, gaged by active open hearths, is down four points this week to 29 per cent of capacity. At the four district plants ten open hearths are engaged, and seven of this number are independent furnaces.

Birmingham, Ala. — Operations have increased two points to 30 per cent of capacity this week. Gulf States Steel Co. has three open-hearth furnaces on and Tennessee Coal, Iron & Railroad Co. has five. Optimism is noted.

Warehouse Sales Making Slight Gains Over August

Warehouse Prices, Page 72

New York—Hoped-for improvement in warehouse volume has not materialized during the first half of September. What limited buying is being done covers a wide range with no outstanding feature. Warehouse stocks as a rule are well balanced. Prices are unchanged, but inclined to be easy on some products.

Boston—Prices on several lines have been revised downward. Price differentials on quantity shipments also have been established. Shapes, plates, bars, hoops and bands all figured in the slight reduction.

Philadelphia—While some jobbers report gains, others see no change in sales volume. Prices are steady.

Buffalo—A slight flurry of buying took place immediately after Labor Day. Demand for galvanized sheets continues to improve.

Pittsburgh—The mild August improvement in sales has not extended into September. Rivet prices are easier, following the recent mill reduction. Other quotations are unchanged.

Cleveland — The anticipated upturn in demand has not yet materialized. Jobbers have not yet despaired of some betterment in the situation before the end of September. Prices continue unchanged.

Detroit—While sales are more numerous, total tonnage is on a comparable basis with August. Several tool and die shops are active. Prices of steel from warehouse are unchanged.

Chicago—Warehouse sales are averaging a shade above August. Warehouse purchases from the mills are in unusually small lots. Prices remain unchanged.

St. Louis—Anticipated betterment in demand following Labor Day has not thus far materialized. Demand from the general manufacturing trade continues spotted and irregular.

Concrete Bars

(*Concluded from Page* 55)

days. Road, bridge and culvert bar prices are 1.60c to 1.65c. A 520-ton bridge project has been awarded, and 3700 tons is active for the Chicago sanitary district.

Contracts Placed

2500 tons, postoffice, Chicago, to Inland Steel Co., Chicago, through John Griffiths & Son Co., contractor.

1600 tons, bridges, Atchafalaya river, Morgan City and Krotzsprings, La., to unstated, through Foundation Co., contractor.

1400 tons, joint sewer project, Elizabeth, N. J., and adjacent municipalities, to Faitoute Iron & Steel Co., Newark, N. J.; Northern States Contracting Co., contractor.

977 tons, retaining walls and bridges, Queensborough, New York, to Concrete Steel Co., New York.

875 tons, school, Fifty-ninth street, Philadelphia, to Concrete Steel Co., New York.

620 tons, veterans' hospital building, Albuquerque, N. Mex., to Colorado Fuel & Iron Co., Pueblo, Colo.; Murch Bros. Construction Co., St. Louis, contractor. Previously reported as 500 tons going to unstated fabricator.

550 tons, plaza to railroad station, for Cincinnati Union Terminal Co., to Pollak Steel Co., Cincinnati.

520 tons, Harlem avenue bridge, Chicago, to Concrete Engineering Co., Omaha, Nebr., through E. J. Albrecht Co., Chicago, contractor.

432 tons, post office, Little Rock, Ark., to Southern General Fireproof Co., Atlanta, Ga.; R. P. Farnsworth & Co. Inc., New Orleans, contractor.

300 tons, high school, Pottsville, Pa., to Concrete Steel Co., New York.

280 tons, sewer, Dearborn, Mich., to Joseph T. Ryerson & Son Inc., Chicago.

260 tons, for Panama canal, to Bethlehem Steel Export Corp., New York.

260 tons, bridge, Port Huron, Mich., to Concrete Steel Co., New York.

250 tons, public health service building, Washington, to Buffalo Steel Co., Buffalo, through Wills, Taylor & Mafera Corp., New York, contractor.

230 tons, school, Silver avenue, San Francisco, to W. C. Hauck & Co., San Francisco.

200 tons, power house, King's county hospital, Brooklyn, N. Y., to Rawlins Steel Co., New York, through Wills, Taylor & Mafera Corp., New York, contractor.

200 tons, school, Englewood, N. J., to Concrete Steel Co., New York, through Walter Kidde Co.

190 tons, addition to state penitentiary, Walla Walla, Wash., to Pacific Coast Steel Corp., Seattle; J. T. Halin, Spokane, contractor.

175 tons, postoffice, Ponce, P. R., to Southern General Fireproof Co., Atlanta, Ga., through T. H. Johnson, Dallas, Tex., contractor.

160 tons, building, A. and M. college, College Station, Tex., to Alamo Iron Works, San Antonio, Tex.

150 tons, New York state highway project, to unstated Buffalo district fabricator.

150 tons, nurses' quarters, veterans hospital, Sunmount, N. Y., to Buffalo Steel Co., Buffalo; Adams Construction Co., Washington, general contractor.

140 tons, roadwork, Providence, R. I., state highway commission, to Concrete Steel Co., New York.

120 tons, two state bridges, Boston, for Massachusetts highway commission to Kalman Steel Corp., Bethlehem, Pa.

100 tons, two bridges, Westchester county, New York, to Tidewater Structural Materials Corp., Hagerstown, Md.; Fox Reynolds Co., contractor.

100 tons, county bridge, Chelan county, Wash., to Northwest Steel Rolling Mills, Seattle; Henry Hagman, Cashmere, contractor.

100 tons, theater and clubhouse, Plattsburg, N. Y., to Concrete Steel Co., New York, through Wills, Taylor & Mafera Corp., New York, contractor.

100 tons, highway, Sparta road, Newton, N. J., to Igoe Bros., Newark, N. J.

Contracts Pending

550 tons, additional work, Fine Arts building, Jackson Park, Chicago.

262 tons, Panama Canal, bids Sept. 3, United States Steel Products Co. low at $11,272.50.

257 tons, viaduct over Lehigh Valley railroad and Liberty avenue, route 29, section 1, Hillside township, Union county, New Jersey; bids Oct. 7; New Jersey state highway commission, Trenton, A. Lee Grover, chief clerk.

250 tons, apartment, Rossmore avenue, Los Angeles; bids being taken.

245 tons, highway work, San Benito county, Calif.; bids Sept. 23.

236 tons, Lincoln viaduct, San Francisco; bids Sept. 16.

235 tons, building for Firestone Tire & Rubber Co., Chicago, previously reported as 150 tons.

225 tons, San Gabriel river outlet, Los Angeles county, Calif.; bids opened.

220 tons, highway, route 36, section 1, Keyport to Keansburg, Monmouth county, N. J.; bids Sept. 23, board of freeholders, Freehold, N. J., Charles E. Cole, clerk. Work also includes one 42-foot span highway bridge, one 10-foot industrial railway underpass and three small span stream bridges.

102 tons, storm sewer and culvert, Oakland, Calif., bids Sept. 15.

100 tons, garage, 1207 S. Grand street, Los Angeles; bids being taken.

Pipe

Stanolind Order, 35,000 Tons, Placed with Four Mills—Cast Awards Heavier, Prices Soft

PIPE PRICES, PAGE 72

New York—The largest pipe line project placed during the week is a 285-mile 12¾-inch gas line for the Stanolind Pipe Line Co., subsidiary of the Standard Oil Co. of Indiana aggregating 35,000 tons of steel. The National Tube Co. booked 140 miles, while Youngstown Sheet & Tube Co., Republic Steel Corp. and A. O. Smith Corp. shared substantially equally in the remaining 145 miles. In the next week or ten days the Standard Oil Co. of New Jersey is to place the 12,000-ton Lycoming line to serve cities in southern New York state. Prices now are being asked on a pipe line in Nebraska. The size of the line has not yet been determined but it will be close to 36 inches and will probably run about 12,000 tons. The first gasoline pipe line in the East has been placed during the week. This is a 100-mile 6⅝-inch line running from Worcester to Providence and to be extended later to Springfield, Mass. The order was placed by the Standard Oil Co. of New York, with National Tube Co., Pittsburgh, and involves 6000 to 7000 tons.

Fresh inquiry for cast pipe has slumped, although several thousand tons are pending. Prices continue to drag. Hackensack Water Co. has placed 2000 tons with the Phillipsburg, N. J., foundry, mostly 36 and 42-inch. Boonton, N. J., has placed 500 tons.

Pittsburgh—Stanolind Pipe Line Co. has awarded 35,000 tons for its new line, Healdton, Okla., to National Tube, Republic, Youngstown and A. O. Smith. Standard pipe activity continues slow, and although tubes and tubing are in better demand than a month ago the improvement is slight and less than seasonal. Oil country goods are moving slowly despite and improvement in general conditions in the oil industry.

Chicago—Cast pressure pipe business largely comprises fill-in needs for early shipments. Chicago delivered prices are nominal on the basis of $40 to $43 for 6 to 24-inch. An order is expected to be closed this week by Milwaukee on 1960 tons of 24 to 54-inch, about 200 tons of which is lug pipe and special castings. Foundry operations are 35 per cent, about the same as a year ago.

Birmingham, Ala.—Lower prices fail to bring about any increase in demand, and shops are operating at less than 50 per cent of capacity.

Steel Pipe Placed

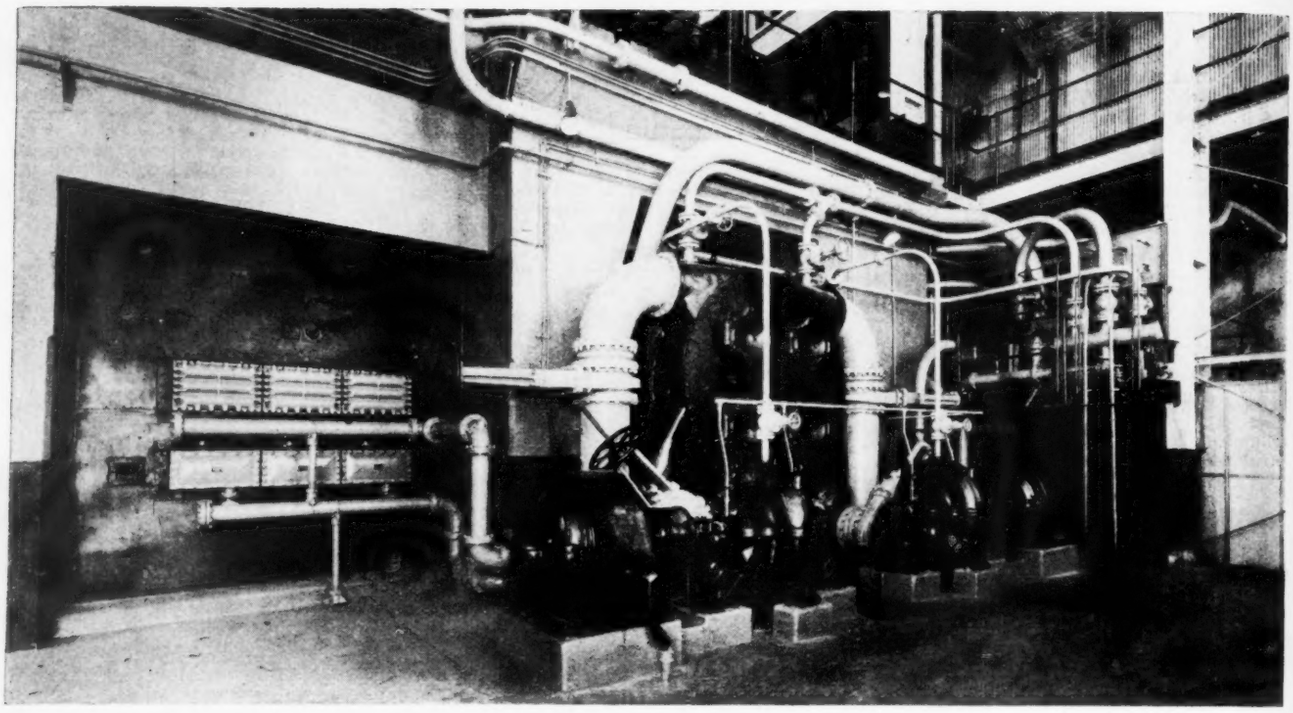
35,000 tons, 8⅝-inch to 12¾-inch steel pipe for the Stanolind Pipe Line Co. to National Tube Co., Pittsburgh, Republic Steel Corp., Youngstown, O., A. O. Smith Corp., Milwaukee, and Youngstown Sheet & Tube Co., Youngstown, O. This line consists of: 190 miles of 12-inch, 90 miles of 10-inch and 100 miles of 8-inch, and is to be used in a series of loops along its main line from Healdton, Okla., to Chicago.

7000 tons, 6⅝-inch line from Worcester, Mass., to Providence, R. I., for Standard Oil Co. of New York, to National Tube Co., Pittsburgh.

Unstated tonnage, 20 sections steel weld-

Pittsburgh Seamless

HIGH PRESSURE PIPING



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ed dredging pipe, army engineer, Vicksburg, Miss., to Youngstown Boiler & Tank Co., Youngstown, O., at $5424.

Unstated tonnage, 1680 feet, wrought iron pipe, United States engineer, Chicago, to Midland Pipe & Supply Co., Chicago.

Unstated tonnage, 10,000 feet 2-inch wrought steel pipe, army engineer, Vicksburg, Miss., to Laclede Tube Co., St. Louis.

Cast Pipe Placed

2500 tons, including 2000 tons, 36-inch, public utility, New Jersey and 500 tons, utility projects, Brooklyn, N. J., to Warren Foundry & Pipe Co., Phillipsburg, N. J.

1000 tons, 6, 8 and 10-inch, Rocky Hill, Conn., to R. D. Wood & Co., Florence, N. J.

750 tons, 6 to 16-inch pipe and fittings, Helena, Mont., to Pacific States Cast Iron Pipe Co., Provo, Utah.

600 tons, 6, 8 and 10-inch, Bolton, N. J., to R. D. Wood & Co., Florence, N. J.

500 tons, up to 14-inch, Boonton, N. J., to R. D. Wood & Co., Florence, N. J.

250 tons, various sizes, Cambridge, Mass., to Warren Foundry & Pipe Co., Everett, Mass.; gates and valves to Chapman Valve Mfg. Co., Springfield, Mass.

320 tons, 6 and 8-inch, bell spigot, water system, Yorktown, Va., department of interior, to Lynchburg Pipe & Foundry Co., Lynchburg, Va.; Virginia Engineering Co. Inc., Newport News, Va., contractor.

300 tons, 6 to 12-inch, Waterbury, Conn., to Donaldson Iron Co., Emaus, Pa.

250 tons, 16-inch and fittings, Glencoe, Ill., to R. D. Wood & Co., Florence, N. J.

125 tons, 10-inch, Long Lake, N. Y., to Warren Pipe Co. of Massachusetts, Boston.

103 tons, 6 and 8-inch class 150, Monrovia, Calif., to United States Pipe & Foundry Co., East Burlington, N. J.

Unstated tonnage, office of architect, Washington, to Glamorgan Pipe & Foundry Co., Lynchburg, Va.

Cast Pipe Pending

4855 tons, 8 and 12-inch class 150, Los Angeles; R. D. Wood & Co., Florence, N. J., low.

600 tons, various sizes, water main extension, Tupper Lake, N. Y.

350 tons, 4, 8 and 16-inch class D, Ann Arbor avenue improvement, Seattle; bids in.

347 tons, 4 to 10-inch class 150, Fresno, Calif.; bids Sept. 18.

319 tons, 6-inch class 150, Mill Valley, Calif.; bids to be called for shortly.

139 tons, 4 to 8-inch class B, Anaheim, Calif.; bids Sept. 22.

2500 feet, 12-inch water pipe, Erie, Pa.; bids soon.

Unstated tonnage, 2100 lineal feet, 12-inch, Marshfield, Wis.; bids Sept. 24.

Unstated tonnage, 1800 feet, 8-inch, 1380 feet of 6-inch and 324 feet of 10-inch, Ironwood, Mich.; bids Sept. 16.

Steel Pipe Pending

12,000 tons, probably 36-inch, line in Nebraska for unstated interest; prices now being asked.

10,000 tons, Lycoming line, Standard Oil Co. of New Jersey; award expected within a week.

Unstated tonnage, 1000 feet, 24-inch electrically-welded steel pipe for army engineer, Cincinnati; bids in Sept. 15.

Wire

Jobber Buying Brings Seasonal Increase — Nailmakers Find Competition from Warehouses

WIRE PRICES, PAGE 51

Chicago—Western wire mills have booked no fourth quarter business, but are extending prices for that period, quotations being untested. Despite unsatisfactory conditions in many farm areas, an upward trend in merchant wire buying is considered likely within the next 30 days. Production has resumed at about 25 per cent, after much lower operations early in the month. Jobbers have moderate stocks.

Worcester, Mass.—Production of wire is maintaining the slight advance previously reported although figures for the month may not bear out the trend because of the Labor Day holiday. Third quarter will probably rank best of the year, although pending price announcements may affect it one way or another.

Philadelphia—Wire is being quoted at 2.20c, Pittsburgh, with local sellers making little effort to obtain the $2 per ton premium from the manufacturing trade.

Mills are holding to $1.90, Pittsburgh, for nails but are losing some business to jobbers, who were able prior to July 15 to contract supplies at $1.80.

New York — Wire makers have opened books for fourth quarter at present levels. Wire nails are $1.90, Pittsburgh, to jobbers and $2 to the general trade; plain bright wire 2.20c and 2.30c, Pittsburgh. Wire rods were reaffirmed at $35, Pittsburgh. The higher prices to the general trade have been only nominal and a test as to whether they will prevail on fourth quarter tonnage is yet to be made. Current buying is light.

Pittsburgh—Demand for wire products shows a slight seasonal gain, largely in jobbing materials. Manufacturers' wire still is moving slowly and shows little gain from the rate a month ago. Producers have opened books for fourth quarter on the basis of current prices of $1.90 to jobbers for wire nails, 2.20c for plain wire and $35 for wire rods. New business is light and a thorough test of these quotations, representing an advance of $2 a ton on jobbing products, has not been accomplished as yet.

Cleveland—Mills have formally announced their fourth quarter asking prices for wire and wire products. The list is unchanged. Nails are nominally $1.90 a keg minimum, plain wire is 2.20c and wire rods are $35 a ton. The week's sales were slow, only an occasional order lending any support toward a brighter outlook.

Semifinished Steel Consumption Still Low

Semifinished Prices, Page 62

Pittsburgh — Semifinished steel shipments and new business are restricted by continued light operations of sheet and strip mills. Demand is holding around the rate of a month ago. No change in prices has been announced for the fourth quarter and the market usually continues $29, Pittsburgh, for rerolling billets, slabs and sheet bars. Forging billets and wire rods are $35.

Philadelphia—With forging shops operating only one or two days a week few orders for billets are being placed. Prices are unchanged at $34, Pittsburgh, for forging quality, and $29 for rerollers.

Youngstown, O.—While a slight gain is noted in the operating rates of independent sheet and strip mills this week, shipments of billets and sheet bars continue of a routine character. A few more independent open-hearth furnaces are operating this week than last, apparently due to expansion in steel needs from all various finishing mill operations. Billets, slabs and sheet bars are unchanged at $29, Pittsburgh and Youngstown.

Cleveland — With finished steel prices being reaffirmed for fourth quarter no reduction in sheet bars, billets and slabs is expected. These are being billed at $29, Cleveland and Youngstown, O. Consumers are not placing contracts, but continue to order small lots as required. The leading merchant producer is operating four of its 14 open hearths.

Issues New Scrap Rates

Washington—Interstate commerce commission has found rates on scrap iron and steel, in carloads, from Gay, W. Va., to Ashland, Ky., and Portsmouth and New Boston, O., not unreasonable or otherwise unlawful in the past but unreasonable for the future. Reasonable rates are prescribed. The decision was in the case of the Mansbach Scrap Iron Co. against the Chesapeake & Ohio.

Raw Material Prices

Pig Iron

Per Gross Ton

FOUNDRY, No. 2

Chicago furnace	$17.50
Pittsburgh, dist. fur.	17.50
Pittsburgh, delivered	18.13 to 18.63
Valley furnace	17.00
Cleveland fur., local del.	17.00
Philadelphia, delivered	16.76 to 17.26
Virginia, furnace	17.75
Granite City, Ill., fur.	17.50
Buffalo, fur., local del.	17.00
Buff., all-rail, Boston	19.91 to 20.41
Buff., all-rail, Brooklyn	19.90 to 20.40
Buff., all-rail, Newark	18.28 to 18.78
Ala., Bir. fur., local del.	12.00
Alabama, del. Chicago	17.01
Alabama, del. St. Louis	15.42
Alabama, del. Cincinnati	14.69 to 15.19
Ala., Phila., dock del.	16.00 to 16.25
Ala., Balt., dock del.	16.00
Alabama, New York dock	16.50
Ala., Boston dock del.	16.50 to 16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinn.	14.69 to 15.19
Montreal, delivered	23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	17.50
Buff., all-rail, Brooklyn	20.90 to 21.40
Buffalo, all-rail Newark	18.78 to 19.28
Buff., all-rail, Boston	20.91 to 21.41
Virginia furnace	18.25
Eastern, del. Phila	17.26 to 17.76

FOUNDRY, NO. 1X

Buffalo fur., local del.	18.50
Eastern, del. Phila.	17.76 to 18.26

MALLEABLE

Valley furnace	17.00
Cleveland fur., local del.	17.00
Pittsburgh dist. fur.	17.50
Pittsburgh, delivered	18.13 to 18.63
Chicago, furnace	17.50
Buffalo fur., local del.	17.50
Eastern Penna., delivered	18.26 to 20.41
Granite City, Ill., fur.	17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district fur.	16.00 to 16.50
Pittsburgh, delivered	16.63 to 17.63
Eastern Penn., del.	16.50
Buffalo fur., local del.	16.50 to 17.00
Montreal, delivered	20.50
Valley, furnace	17.00

BESSEMER

Valley furnace	17.00
Pittsburgh, delivered	18.13 to 18.63
Pittsburgh, furnace	17.50

LOW PHOS.

Valley fur., standard	27.00
Philadelphia, standard	23.76 to 26.79
Copper-bear., E. Pa. fur.	21.50 to 23.00

GRAY FORGE

Valley furnace	16.50
Pittsburgh district fur.	17.00
Pittsburgh, delivered	17.63 to 18.13

CHARCOAL

Lake Superior, del. Chi.	25.04

SILVERY

Jackson County, O., fur. in per cents: 6—$20; 7—$20.50; 8—$21; 9—$21.50; 10—$22; 11—$23; 12—$24; 13—$26.

BESSEMER FERROSILICON

Jackson County, O., fur. in per cents: 10—23; 11—$24; 12—$25; 13—$27; 14—$29; 15—$31; 16—$33.

Coke

Prices Per Net Ton

Beehive Ovens

Connellsville furnace	$2.40 to 2.50
Connellsville foundry	3.25 to 4.50
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

By-Product Foundry

Newark, N. J., del.	8.70 to 9.10
Chicago, ovens	7.50
New England, del.	10.50
St. Louis, del.	8.50
Birmingham, ovens	5.00
Indianapolis, del.	8.25
Ashland, Ky., ovens, Connell., basis	5.50
Portsmouth, O., ovens, Connell., basis	5.50
Buffalo, ovens	8.00 to 8.50
Detroit, ovens	8.00
Philadelphia, del.	8.75

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports

Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%, contract	10.00
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-10% manganese	10.00
North African low phosphorus	8.50
Swedish basic, 65%	9.00
Swedish low phos.	10.00
Spanish, North African basic, 50 to 60%	8.50 to 9.00
Newfoundland fdy., 55%	8.50
Tungsten, spot and future short ton unit, duty paid	$11.25 to $11.50
Chrome ore, 48% net ton c.i.f.	$21.50 to 22.00

Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55% (nom.)	26 to 28 cents
South African, 52%	26 to 28 cents
South African, 49-51%	25 to 26 cents
South African, 44-47%	24 cents
Indian, 48-50%	nom.
Brazilian, 46-48% (nom.)	22 cents

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Maryland, Georgia, Alabama	$40.00
Missouri	37.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	25.00 to 35.00
Georgia, Alabama	30.00

SILICA BRICK

Pennsylvania	40.00
Joliet, Ill., East Chicago, Ind.	49.00
Birmingham, Ala.	50.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	$65.00

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	40.00
Domes, Chewelah, Wash., base	22.00

CHROME BRICK

Net ton, Chester, Pa., and Balt. base, 9 x 4½ x 2½	45.00

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$29.00
Pittsburgh, bessemer	29.00
Youngstown	29.00
Cleveland	29.00
Philadelphia	34.30
Chicago	30.00
Forging, Chicago	35.00 to 36.00
Forging, Pittsburgh	35.00
Forging, Philadelphia	39.30

SHEET BARS

Pittsburgh	29.00
Youngstown	29.00
Cleveland	29.00
Chicago	30.00

SLABS

Pittsburgh	29.00
Youngstown	29.00
Cleveland	29.00

WIRE RODS

Pittsburgh, Cleveland	35.00
Chicago	36.00

SKELP

All grades, Pittsburgh	1.60c

Ferroalloys

(In dollars, except Ferrochrome)

*Ferromanganese, 78-82%, tidewater, duty paid	$85.00
*Ferromanganese, del. Pittsburgh	89.79
Spiegeleisen, 19-20%, domestic fur. spot†	30.00
Ferrosilicon, 50 per cent, freight all., c. l.	83.50
Do, less carload	88.50
Do, 75 per cent	130.00 to 150.00
Ferrochrome, 66-70 chromium, 4-6 carbon, cts. lb., con. del.	11.00
Do, for spot delivery	11.50
Ferrotungsten, stand., lb. cont.	1.00 to 1.10
Ferrovanadium, 30-40 per cent, per lb., contained, on analysis	3.15 to 3.65
Ferro-carbon-titanium carload producers' plants, net ton	150.00
Do, one-ton to c. l.	170.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis (18 per cent)	91.00
Ferrophosphorus, electrolytic per ton carload, 23-25% f.o.b. Anniston, Ala., 24%	122.50
Ferromolybdenum, stand. 50-60 per cent, per lb.	$1.00
Cal. Molybdate, lb. cont.	.85

†Carloads. Differentials apply to quant.
*To users of carloads to 500 tons annually. Differentials to large users.

Fluorspar

85 and 5 per cent grade

Washed gravel Kentucky and Illinois mines, per net ton	$13.00
Washed gravel, import duty paid east, tide, gross ton	18.50

» » » » »

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ARMCO

IRON AND STEEL

SHEETS EXCEPTIONAL QUALITY PLATES

Pig Iron

Contracting for Fourth Quarter Slow—Shipments Rise—Basic Lower in Eastern Market

PIG IRON PRICES, PAGE 62

Pittsburgh—Demand for pig iron is showing insufficient change to indicate a general upturn, despite occasional slight increases in shipments to some points. The volume of shipments and new business are near the August rates. Orders usually are for single carloads urgently required. No formal inquiries are appearing. Prices are nominally unchanged, but buying is too light to provide a test.

Boston—The past week was about the dullest of the summer in the pig iron market. A few carloads were sold. Prices are unchanged.

New York—It is estimated that approximately 2000 tons of pig iron was sold in this district in the past week, compared with 2500 to 3000 tons in the preceding week.

Buffalo iron is steady at $15 to $15.50, furnace, for shipment into this territory. Eastern Pennsylvania iron is $16 to $16.25, furnace, on the usual run of business. Attractive orders would test these prices severely, however. Southern iron is $11, furnace, or $16.50, delivered New York docks.

Philadelphia—An inquiry for 500 tons of No. 2 plain foundry iron for delivery next year to a Baltimore melter is current. One eastern Pennsylvania furnace is reported to have bid $16, base, for first quarter only. Eastern Pennsylvania iron is $16.15 to $16.50 furnace, subject to occasional shading. Few other inquiries are noted. Basic is off 25 cents a ton to $16.50, for eastern Pennsylvania delivery.

Buffalo—Pig iron shipments improved slightly during the past week, due principally to a brisk movement by barge canal before rates are increased as the end of navigation approaches. September shipments may be the largest in four or five months, while buying seems to have expanded slightly. One order for 500 tons of malleable is pending. At least two local sellers have fixed $16 as a firm minimum on iron for eastern shipment.

Youngstown, O.—Minimum buying of No. 2 foundry and malleable continues the rule. Blast furnace operations are unchanged. No. 2 foundry, malleable, bessemer and basic continue $17, valley. Standard copper-free, low phosphorus iron is $27.

Cleveland—New business in the pig iron market is not holding up to the August average, but shipments are well ahead of it. One merchant furnace interest's shipments in the first half of September were 20 per cent larger than those in the comparable period last month. This mainly reflects increasing demand from the automotive industry. Foundry operations in Cleveland and vicinity continue at an average of two or three days a week. Few inquiries are developing for the fourth quarter. Sales booked by furnace companies with headquarters in Cleveland in the past week apparently were at one of the lowest points this year, 2500 tons, about half the amount taken by the same companies in the preceding week. Prices are steady at $17, base, furnace, for local delivery, and $16 to $17, base, lake furnaces, for shipment in southern and northwestern Ohio, and northern Indiana.

Cincinnati—Reports indicate southern furnaces are firm at $11, base, Birmingham, on an inquiry from Indiana for 700 to 1000 tons, the contract not having been closed. This has been the only recent test of the quotation. Sales during the past week declined slightly.

Chicago—Moderate improvement in pig iron deliveries is indicated by September shipping schedules now at hand, but forward inquiry is light. Stove foundry orders have subsided, although shipping requirements are fair. Jobbing foundry schedules in the district are about 20 per cent. Northern grades are $17.50, base, Chicago furnace. Recent lower steelworks offerings have disappeared.

St. Louis — Shipments have improved moderately, indicating this month will be better than August. New orders, however, have not gained since Labor Day. Some of the jobbing foundries have received a fair volume of business and will increase operation, in some instances up to a level of 50 per cent. Prices are firm at $11, base, furnace, for southern iron, and $17.50 for northern.

Birmingham, Ala.—More pig iron is moving at Atlantic coast points, since a reduction in freight rates enables buyers to save 25 cents a ton. Eight blast furnaces in this district are operating, and it is believed more iron will be shipped than produced this month. The base price is steady at $12 for local shipment, and $11 for distant competitive points.

Toronto, Ont.—Though pig iron sales remain light, amounting in all to 500 tons in the past week, inquiries are becoming more numerous. Melters are operating with light stocks and some buying will have to be done for fourth quarter.

Ferroalloy Shipments Light; Prices Steady

Ferroalloy Prices, Page 62

Pittsburgh—Shipments of ferroalloys continue at the low rate of steelmaking operations and mills are taking in little material in anticipation of improved operations. New business is quiet with the market continuing $89.79 delivered for ferromanganese and $30, furnace for spiegeleisen.

New York—Spot demand for ferromanganese is virtually nil, although a small improvement in contract specifications is expected. The ordnance department will open bids Sept. 22 on a small lot for the Washington navy yard. Prices are unchanged at $85, duty paid, on carlots. Domestic spiegeleisen, 19 to 21 per cent, is $30, furnace, in carlots.

Refractories Dull, but Needs Are Piling Up

Refractories Prices, Page 62

Pittsburgh—Refractory demand is slow and shows no seasonal improvement. Sales this month approximate the low August volume and improved business is dependent upon the future course of iron and steelmaking operations. Contrary to former practice, mills have done little repair work during the period of quiet and any material improvement would require considerable work on linings. New construction work is light and little refractory business is being received for this purpose. Mills continue to carry light stocks and a gain in brick demand would be reflected quickly in shipments.

Prices are fairly steady, although second quality fire clay brick quotations have developed a wide range, due to the fact that some brick of an even lower quality are being included under the second grade classification. First quality fire clay brick prices are $40 except in Missouri, where the market is $37. Second quality material is $25 to $35. Silica brick continues $40, with magnesite brick $65.

Scrap

Melters Continue Embargoes on Shipments — Railroads Hold Back Tonnage

Chicago—Despite light trading and inquiries in iron and steel scrap, a sentimentally stronger position has been established because of restricted releases from the railroads and a few industrial scrap producers. Five of the larger western railroads have reduced scrap offerings to this market by 75 per cent of what normally would be expected at this time, while other carriers are withholding scrap from the market entirely. It is stated this is due to the low market price, although in some quarters it is stated the reduced volume of railroad and certain grades of industrial scrap may be the result of a lack of impetus to collect the material for market preparation, rather than to committed policies of holding scrap from the

Iron and Steel Scrap Prices

Corrected to Tuesday noon. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	7.50 to 8.50
Boston, dealers	4.50 to 5.00
Buffalo, No. 1	9.00 to 9.50
Buffalo, No. 2	7.75 to 8.25
Chicago	8.00 to 8.50
Cinci., deal.	7.25 to 7.75
Cleve., No. 1	8.50 to 9.00
Cleve., No. 2	7.50 to 8.00
Det., No. 1 deal.	6.75 to 7.25
Det., No. 2 deal.	5.50 to 6.00
E. Pa. del. mill	8.00 to 9.00
N. Y. deal. R. R.	5.00 to 6.50
N. Y. deal. No. 2	3.50 to 4.00
N. Y. deal. yd.	4.00 to 4.50
Pitts., No. 1	10.50 to 11.00
St. L. No. 1 sel.	8.00 to 8.20
Federal, Ill.	7.75 to 8.25
Granite City, Ill.	7.00 to 7.50
Valleys, No. 1	10.50 to 11.00

COMPRESSED SHEETS

Buffalo, dealers	7.75 to 8.25
Chi., (Factory)	7.00 to 7.50
Cleveland	7.50 to 7.75
Detroit, dealers	6.50 to 7.00
E. Pa. new mat.	8.00 to 9.00
Pittsburgh	10.50 to 11.00
Valleys	10.00 to 10.50

BUNDLED SHEETS

Buffalo	5.50 to 6.00
Cinci., deal.	6.75 to 7.25
Cleveland	6.50 to 7.00
Eastern Pa.	6.50 to 7.00
Pittsburgh	9.50 to 10.00
St. Louis	5.00 to 5.50

SHEET CLIPPINGS LOOSE

Chicago	4.00 to 4.50
Cincinnati	4.00 to 4.50
Detroit, dealers	3.50 to 4.00
St. Louis	5.00 to 5.50

STEEL RAILS SHORT

Birmingham	10.75 to 11.50
Boston, dealers	3.00 to 4.50
Buffalo	12.00 to 12.50
Chicago (3 ft.)	10.00 to 10.50
Chicago (2 ft.)	10.75 to 11.25
Cinci., deal.	12.50 to 13.00
Detroit, deal.	11.00 to 11.50
Pitts. (open-hearth, 3 ft. and less)	12.50 to 13.00
St. Louis	12.00 to 12.50

STOVE PLATE

Birmingham	6.50 to 7.00
Boston, con.	5.00 to 5.50
Buffalo	8.25 to 8.50
Chicago, net	7.00 to 7.50
Cinci., deal. net	4.50 to 5.00
Det., net deal.	4.00 to 4.50
Eastern Pa.	7.50 to 8.00
N. Y., deal. mill	4.75 to 5.50
St. Louis	6.50 to 7.00

COUPLERS, SPRINGS

Buffalo	11.00 to 11.50
Chicago	9.25 to 9.75
Eastern Pa.	13.00
Pittsburgh	12.00 to 12.50
St. Louis	8.50 to 9.00

ANGLE BARS—STEEL

Chicago	9.25 to 9.75
St. Louis	7.50 to 8.00

LOW PHOSPHORUS

Buffalo, billets and bloom crops	12.75 to 13.25
Cleveland bil. and bloom crops	12.00 to 12.50
Eastern Pa.	13.50 to 14.00
Pittsburgh billet bloom crops	14.00 to 14.50
Pitts. sheet bar crops	13.00 to 13.50

FROGS, SWITCHES

Chicago	8.50 to 9.00
St. Louis	8.50 to 9.00

SHOVELING STEEL

Chicago	8.00 to 8.50
Cleveland	6.50 to 7.00
St. Louis	7.75 to 8.25

RAILROAD WROUGHT

Birmingham	7.50 to 8.00
Boston, dealers	8.00 to 8.50
Buffalo, No. 1	7.00 to 7.50
Buffalo, No. 2	9.00 to 9.50
Chicago, No. 1	8.00 to 8.40
Chicago, No. 2	8.00 to 8.50
Cinci., No. 2	7.25 to 7.75
Eastern Pa.	9.50 to 10.00
N. Y., No. 1, deal.	9.00 to 9.50
Pitts., No. 2	10.50 to 11.00
St. Louis, No. 1	5.00 to 5.50
St. Louis, No. 2	7.75 to 8.25

SPECIFICATION PIPE

Boston	5.00 to 5.25
Eastern Pa.	10.00 to 10.50
N. Y., deal.	5.00 to 5.50

BUSHELING

Buffalo, No. 1	7.75 to 8.25
Chicago, No. 1	6.75 to 7.25
Cinn., No. 1 dl.	6.00 to 6.50
Cinn., No. 2	3.50 to 4.00
Cleve., No. 2	6.25 to 6.75
Det., No. 1 new deal.	5.50 to 6.00
St. L., No. 1	6.00 to 6.50
Val. new No. 1	9.50 to 10.00

MACHINE TURNINGS

Birmingham	3.50 to 4.00
Boston, dealers	1.50 to 1.75
Buffalo	4.75 to 5.25
Chicago	4.25 to 4.75
Cinn., deal.	3.75 to 4.25
Cleveland	5.00 to 5.50
Detroit	4.00 to 4.50
Eastern Pa.	5.00 to 6.00
N. Y., deal.	2.00 to 2.50
Pittsburgh	7.50 to 8.00
St. Louis	3.00 to 3.50
Valleys	8.00 to 8.25

BORINGS AND TURNINGS
For Blast Furnace Use

Boston	1.50 to 1.75
Buffalo	6.00 to 6.50
Cinn., deal.	4.50 to 5.00
Cleveland	6.50 to 7.00
Detroit, deal.	4.75 to 5.25
Eastern Pa.	5.50
N. Y., deal.	2.00 to 2.50
Pittsburgh	7.50 to 8.00

CAST IRON BORINGS

Birming., chem.	12.50 to 13.00
Birming., plain	3.50 to 4.00
Boston, chem.	7.00 to 7.25
Boston, deal.	1.50 to 1.75
Buffalo	6.00 to 6.50
Chicago	4.00 to 4.50
Cinn., deal.	3.75 to 4.25
Cleveland	6.50 to 7.00
Detroit, deal.	4.75 to 5.25
Eastern Pa.	5.00 to 6.00
E. Pa., chem.	10.50 to 12.00
N. Y., deal.	2.00 to 2.50
Pittsburgh	7.50 to 8.00
St. Louis	5.50 to 6.00

PIPE AND FLUES

Cinn., deal.	6.00 to 6.50

RAILROAD GRATE BARS

Buffalo	6.50 to 7.00
Chicago, net	5.75 to 6.25
Cincinnati	5.50 to 6.00
Eastern Pa.	7.50 to 8.00
N. Y., deal.	5.00 to 5.50
St. Louis	6.00 to 6.50

FORGE FLASHINGS

Boston, deal.	5.00 to 5.25
Buffalo	7.50 to 8.00
Cleve. ov. 10 in.	7.00 to 7.50
Detroit	5.50 to 6.00

FORGE SCRAP

Boston, del.	5.00 to 5.25
Chicago	11.00 to 11.50
Eastern Pa., del.	8.00 to 8.50

ARCH BARS, TRANSOMS

Chicago, net	9.00 to 9.50
St. Louis	7.75 to 8.25

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	7.50 to 8.00
Chi., steelworks	7.00 to 7.50
Cleveland	6.75 to 7.00
Eastern Pa., del.	7.50 to 8.50
Pittsburgh	9.50 to 10.00
St. Louis	6.50 to 7.00

STEEL CAR AXLES

Birmingham	11.50 to 12.00
Boston, ship. pt.	11.00 to 12.00
Buffalo	14.50 to 15.00
Chicago	12.90 to 13.45
Eastern Pa.	18.50 to 19.50
St. Louis	11.50 to 12.00

SHAFTING

Bos., ship. pt.	10.00 to 10.50
Chicago	8.95 to 9.50
N. Y., deal.	9.00 to 9.50
St. Louis	9.00 to 9.50
E. Penna.	18.00

CAR WHEELS

Birming., iron	8.50 to 9.50
Boston, iron	14.00 to 14.50
Buffalo, iron	10.50 to 11.00
Buffalo, steel	11.00 to 11.50
Chicago, iron	9.50 to 10.00
Chi. rolled steel	9.50 to 10.00
Cincinnati, iron	9.50 to 10.00
E. Pa. steel	10.50 to 11.00
E. Pa. iron	12.50 to 13.00
Pitts. iron	11.00 to 11.50
Pitts., steel	12.50 to 13.00
St. Louis, iron	7.00 to 7.50
St. Louis, steel	8.50 to 9.00

NO. 1 CAST SCRAP

Birmingham	8.50 to 9.00
Buffalo (mach.)	10.25 to 10.75
Boston, textile	10.00 to 10.50
Chicago, mach.	9.80 to 10.35
Chi., railroad	8.70 to 9.25
Chicago, agri.	8.40 to 8.95
Cinn., mach. cup., gross	12.25 to 12.75
Cleve. cupola	10.00 to 10.50
Det., net deal.	8.00 to 8.50
E. Pa., cupola	12.50 to 13.00
N. Y. cup. deal.	7.00 to 7.50
N. Y., del. local foundries	12.00
Pitts., cupola	10.00 to 10.50
San Fran., del.	13.50 to 14.00
Seattle	5.00 to 7.50
St. L. No. 1 ma.	8.50 to 9.00
St. L. No. 1	7.50 to 8.00

HEAVY CAST

Boston	10.50 to 11.00
Bos. mach. cast	11.50 to 12.50
Buffalo, break	6.75 to 7.25
Cleve., break	6.00 to 6.50
Detroit, auto, net deal.	10.50 to 11.00
Det., break., dl.	5.50 to 6.00
Eastern Pa.	10.00 to 10.50
N. Y. No. 1 dl.	7.00 to 7.50
N. Y., break, dl.	6.50 to 7.00
Pittsburgh	8.00 to 8.50

MALLEABLE

Boston R. R.	13.00 to 13.50
Buffalo	10.00 to 10.50
Chicago, agri.	8.00 to 8.50
Chicago, R. R.	8.50 to 9.00
Cinci., R. R. del.	10.25 to 10.75
Cinci., agri. del.	10.00 to 10.50
Cleveland, rail	10.00 to 10.50
Det. auto deal.	9.50 to 10.00
St. Louis, rail	6.75 to 7.25

RAILS FOR ROLLING
5 feet and over

Birmingham	10.50 to 11.00
Boston	7.50 to 8.00
Buffalo	10.00 to 10.50
Chicago	10.50 to 11.00
Eastern Pa.	11.50 to 12.00
New York	6.25 to 6.75
St. Louis	10.50 to 11.00

LOCOMOTIVE TIRES

Chicago, cut	11.00 to 11.50
St. L., No. 1	9.50 to 10.00

LOW PHOS. PUNCHINGS

Chicago	11.00 to 11.50
Buffalo	12.50 to 13.00
Eastern Pa.	13.00 to 14.00
Pittsburgh	13.50 to 14.00

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Warehouse Stocks of Cold Rolled Strip Steel are Carried by
EDGCOMB STEEL CO., Philadelphia EDGCOMB STEEL CORP., Newark
JOS. T. RYERSON & SON, Chicago

market because of low prices. It is expected the restricted releases may bestir more inquiry from melters needing early shipments. Heavy melting steel is quiet at $8 to $8.50. Fairly high prices are being paid for cast borings, which are being accumulated at the dock, for possibly another lake cargo to be moved eastward this season.

Boston—Scrap prices remain firm mainly because there is no business. Sellers continue out of the market.

New York—Most scrap contiuues to move from the Buffalo district by barge with $6.25, and in some instances $6.50, being paid for No. 1 steel. Eastern Pennsylvania consumers are taking little scrap, the market for No. 1 heavy melting steel being nominally $8.50 delivered. Coatesville, Pa., is taking light shipments against contracts and a limited volume has moved to Harrisburgh, but shipments to most mills are near standstill. A Florence, N. J., foundry is taking breakable cast at $10 delivered.

Philadelphia—A Coatesville, Pa., consumer of heavy melting steel has bought several hundred tons of that grade from the South at $8.50, delivered. The general spread in this material is unchanged at $8 to $9. Leading consumers at Phoenixville, Pa., and Claymont, Del., continue their ban on shipments. While most consumers of heavy breakable cast refuse to pay more than $10 delivered, and Pencoyd recently bought 1200 tons at $9.75, delivered, dealers continue to buy against higher priced contracts.

Buffalo — Aside from additional small lot sales of No. 1 machinery cast and stove plate the Buffalo market is without feature. Dealers say nominal prices are being maintained in actual transactions. One steelworks is taking deliveries of heavy meltin gsteel, but another is again holding up shipments. Bethlehem Steel Co. is not buying locally.

Pittsburgh—The scrap market is quiet and steady. Following recent sales of railroad heavy melting steel at $11.50 no additional buying has been done and on the ordinary grade $11 is firm as the maximum, giving a range of $10.50 to $11. Supplies are still scarce, adding to strength. Activity in other grades is light and prices generally are unchanged.

Cleveland—While some shipments continue to be made to consuming mills in this district of small tonnages of heavy melting, blast furnace borings, cupola cast, and like sorts of iron and steel scrap, movement as a whole is insignificant. Releases to dealers on contracts are difficult to obtain. The holdups in the valley district also are keeping down shipments to the minimum.

Cincinnati—Conditions in the iron and steel scrap market remain unchanged with shipments no heavier. Recent releases of railroad scrap have been somewhat lighter. A current list of the Southern Railway shows 1700 tons of rails. Dealers' quotations, unaltered, are nominal in absence of tests on tonnage business.

Detroit—Offerings are spotty and slightly under August. A Buffalo district blast furnace interest has been buying No. 2 busheling, now quotable at $3 to $3.50. The Great Lakes Steel Corp. continues to use scrap from stock, not having been in the open market for six months. It is operating three of its six open hearths. Heavy melting steel is off 25 cents this week.

St. Louis—The situation in iron and steel scrap shows little change. Buying by melters is small and activities are confined chiefly to exchanges among dealers. No price changes have been recorded for the past two weeks, because no trades have been made upon which to base accurate quotations. The tone of the market, however, is fairly steady.

Toronto, Ont. — Trading interest lagged in the iron and steel scrap markets during the week. Some small orders were booked for iron scrap, but steel failed to show improvement. Consumers hold to the hand-to-mouth buying policy and are placing orders mostly for single carlots. Repeat orders, however, are appearing at regular intervals. Yards are well stocked and dealers are out of the market except when special grades are needed. Prices remain unchanged.

Birmingham, Ala.—Quotations are unchanged and the market is slow. Some tonnage is moving but the aggregate tonnage is unsatisfactory.

Canadian Scrap

Dealers' Buying Prices

MONTREAL

Per Gross Ton

Iron axles	$11.00
Steel axles	10.00
Car wheels	8.00
Stove plate	8.00
Wrought pipe	2.00
Turnings	2.00
Heavy melting steel	6.00

TORONTO

Steel axles	7.00
Iron axles	7.00
Heavy melting steel	7.00
Turnings	2.00
No. 1 mach. cast (net)	9.00
Malleable (net)	7.00

Coke

Beehive Foundry Fuel Shipments Slightly Heavier—Furnace Grades Quiet

COKE PRICES, PAGE 62

Pittsburgh—A slight improvement is noted in activity in the market for beehive coke. Some foundries are taking heavier shipments than a month ago, but furnace fuel demand is unchanged. Warm weather retards demand for domestic heating coke. Prices are fairly steady, aided by restricted supplies. The standard furnace grade usually is $2.40, and foundry grades are $3.25 to $4.50.

Boston—Extremely warm weather prevailed throughout New England during the week, resulting in a further slowing down of foundry operations. Demand for coke from foundry and domestic sources was about the lowest of the year.

New York—Trading in beehive furnace coke is at a virtual standstill. Prices are nominally $2 to $2.25, Connellsville, Pa. Trading in beehive foundry coke is a little better, with prices of ordinary grades unchanged at $3 to $3.25, Connellsville. Premium brands are $4.50, Latrobe, Pa. By-product coke is $8.70 to $9.10, Newark, N. J.; $10.50, New England; and $8.75, Philadelphia.

Cincinnati—Shipments of by-product foundry coke are spotty, some interests expecting September tonnage to exceed August by at least 10 per cent. Demand for domestic grades is good.

St. Louis—Coke shipments have picked up slightly, and with the resumption of part-time operations at a number of foundries, September business is expected to exceed that of August. A slight improvement is noted in demand for industrial coke.

Birmingham, Ala.—With 750 out of 1390 ovens in this district in operation and a number of those active being operated on slow schedules, production is at a low ebb. Demand shows no improvement.

Pacific Coast

Dullness General and Prospective Business Is Small—Awards Small but Totals Compare Well with 1930—Steel Mills Close from Lack of Tonnage—Cast Iron Pipe Buying Is Fair

San Francisco—(*By Air Mail*)—Trading during the past week was interrupted by the Labor and Admission Day holidays and as a result few awards were reported. The situation generally is far from encouraging. Keen competition has weakened prices.

Bars, Plates and Shapes

Only one award of importance was noted this week. W. C. Hauck & Co. secured 230 tons for a school on Silver avenue, San Francisco. Awards totaled 604 tons. Bids were opened on 255 tons for the San Gabriel river outlet for Los Angeles county. Bids will be opened Sept. 23 for 254 tons for highway work in San Benito county, Calif. Other pending business includes 236 tons for the Lincoln viaduct, San Francisco, and 150 tons for an apartment in Los Angeles. Prices on out-of-stock material in the Los Angeles district remain unchanged at 2.50c, base, on carload lots. San Francisco quotations are firm at 2.00c, base.

Coast Pig Iron Prices

Utah basic	$22.00 to 24.00
Utah foundry	22.00 to 24.00
*German	24.25
*Indian	22.00 to 24.00

*C.i.f. duty paid.

No plate awards of size were reported. Plate fabricators are keenly interested in the 12,000 tons for the Lincoln, Nebr., pipeline, bids on which will be opened Sept. 22. Prices are weak and the range is now 1.85c to 1.95c, c.i.f.

Shape Demand Is Fair

Demand for structural shapes continues fair and awards this week aggregated 906 tons. The Western Iron Works booked 300 tons for a new plant for the Vermont Marble Co., San Francisco. Pier No. 38, San Francisco, 150 tons, was placed with the California Steel Co. McClintic-Marshall Corp. was awarded 140 tons for a novitiate in Burlingame, Calif. New inquiries include 500 tons for a sand and gravel plant at Boulder City, Nev. Bids have been opened on 625 tons of sheet steel piling for the San Gabriel river outlet for Los Angeles county. Plain shapes are quoted at 2.05c, to 2.15c c.i.f.

Other Finished Material

Bookings of cast iron pipe totaled 1079 tons this week. The United States Pipe & Foundry Co. secured 103 tons of 6 and 8-inch Class 150 pipe for Monrovia, Calif. R. D. Wood & Co. were low bidders on 4855 tons of 8 and 12-inch Class 150 pipe for Los Angeles. Bids will be opened Sept. 18 for 347 tons of 4 to 10-inch Class 150 pipe for Fresno, Calif., and Sept. 22 for 139 tons of 4 to 8-inch Class B pipe for Anaheim, Calif. Movement of standard steel pipe has shown little improvement during the past 30 days.

Some Pipe Is Moving

Seattle—Demand for iron and steel products continues slow and the market shows no improvement. Fall activity is lacking and only public works are under way or pending. Some branches of industry report business conditions the worst in more than 20 years, others manage to operate at nearly full capacity.

The week's awards in the Pacific Northwest were not of importance and no large inquiries developed. Building construction is off badly and the lumber industry has shown no improvement, with production under 40 per cent of capacity.

Pig Iron and Coke

Conditions are unchanged in pig iron and coke. Foundry operations have not improved and there are no prospects of fall activity. Purchases are confined to small lots. British coke is being used almost exclusively still being quoted at $13, f.o.b. plant, No. 1 Columbia at $21 and No. 2 at $20.50.

Bars, Plates and Shapes

Merchant bars are in poor demand and inquiries for reinforcing material are few and for small tonnages. Both local mills are closed temporarily. Awards this week totaled nearly 300 tons. Pacific Coast Steel Corp., Seattle, booked 190 tons for the new cell block at the Walla Walla state penitentiary and Northwest Steel Rolling Mills will furnish about 100 tons for a concrete bridge in Chelan county, Wash., general contract to Henry Hagman, Cashmere, Wash., at $48,581.

While no plate awards were announced this week, interest centers in Seattle's proposed Cedar river pipe line, plans for which are being drawn and on which bids will be received soon. The steel tonnage involved is not yet known. Puget Sound Navy yard is calling for a small order of various sized boiler plates.

The only shape award of the week was taken by Hofius Steel & Equipment Co., Seattle, approximately 100 tons for an addition to the federal prison at McNeil Island, Wash.

Finished Materials

The wholesale jobbing turnover is disappointing, September volume to date being less than in August. No item is in good demand, purchases being confined to bare necessities. Prices are unchanged with no stability, buyers having the upper hand. While prices are unusually low, this has not increased the volume of sales.

Bids have been opened at McNeil Island prison for sheaves, box bearings, snatch blocks, wire rope and other miscellaneous equipment. E. H. Edwards Co., San Francisco, submitted the low bid of $13,125 for furnishing 315,630 feet of guard rail cable to Washington state highway department.

Seattle will open bids Sept. 18 for furnishing the municipal street railway with 500 gross tons of open hearth steel plain girder rails.

Pipe Tonnages Are Small

Helena, Mont., city council has awarded to the Pacific States Cast Iron Pipe Co., Provo, Utah, lowest of four bidders, the contract to furnish approximately 750 tons of cast iron pipe and fittings. The project involves about 24,000 feet of 6 to 16-inch water pipe. Business pending includes 350 tons of cast iron pipe for a Seattle improvement, bids in.

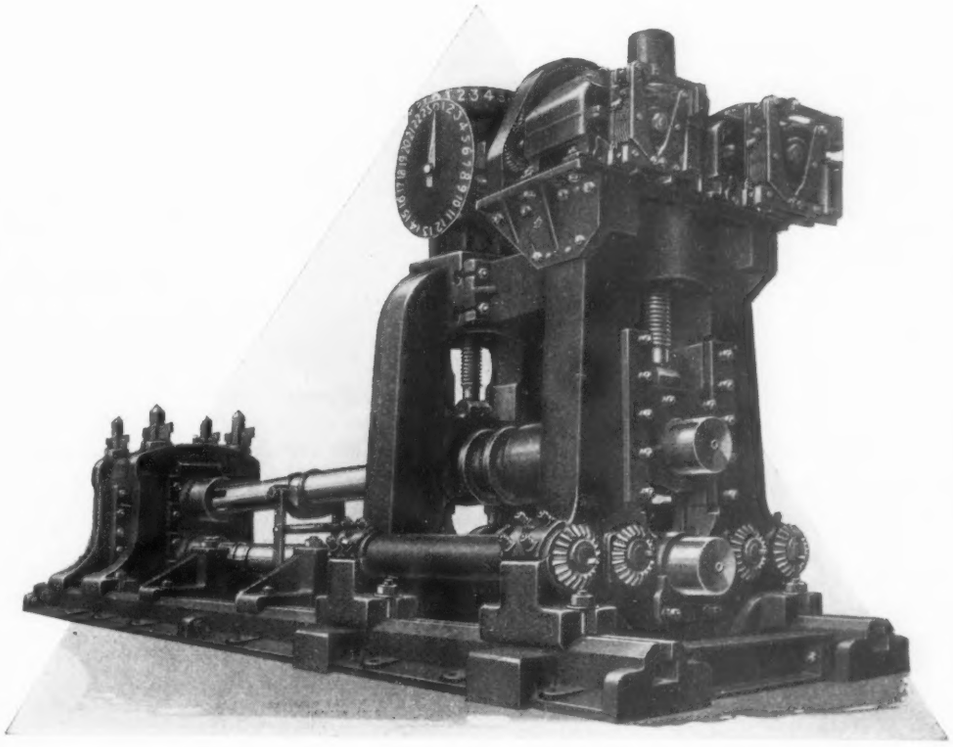
Old Materials

The scrap market is practically unchanged, possibly weaker. With open hearth furnaces out of commission, mills are buying with unusual discrimination and the turnover includes only small lots. Dealers are overstocked and are not interested. Prices range from $5 net ton to $7.50, gross, the top price prevailing at mills for best selected grades.

Operates New Rod Mill

The new rod mill unit of the plant of the Canada Wire & Cable, Ltd., Montreal, Que., has been completed and is being operated.

"NATIONAL" ROLL



ROLLING MILL MACHINERY

PLAIN CHILLED ROLLS
SPECIAL CHILLED ROLLS
COLD ROLLS
SAND ROLLS

ROLLS

EXTRA HARD ROLLS
FOR
BRASS
COPPER
ALUMINUM

THE NATIONAL ROLL & FOUNDRY COMPANY

Office and Works: AVONMORE, PA., U.S.A.

Steel, Wrought and Cast Iron Pipe, and Tubing

Welded Iron, Steel Pipe

Base Price $200 Ton

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to jobbers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

	Steel			Iron	
In.	Blk.	Gal.	In.	Blk.	Gal.
½	58	44½	½	23	5
¾	62	50½	¾	28	11
1—3	64	52½	1—1¼	31	15
			1½—2	35	18

LAP WELD

2	57	45½	2	23	9
2½—6	61	49½	2½—3½	28	13
7—8	58	45½	4—6	30	17
9—10	56	43½	7—8	29	16
11—12	55	42½	9—12	26	11

BUTT WELD

Extra strong, plain ends

½	55	44½	¼ & ⅜	+13	+48
¾	60	49½	½	23	7
1—1½	62	51½	¾	28	12
2—3	63	52½	1—2	34	18

LAP WELD

Extra strong, plain ends

2	55	44½	2	29	13
2½—4	59	48½	2½—4	34	20
4½—6	58	47½	4½—6	33	19
7—8	54	41½	7—8	31	17
9—10	47	34½	9—12	21	8
11—12	46	33½			

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. Direct mill shipments, base, 5 and 2½. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload Discounts, f. o. b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES

COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½, 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir. ....$33.00 to 35.00
Four-inch, Birmingham .... 37.00 to 39.00
Four-inch, Chicago ..... 43.00 to 46.00
Six to 24-inch, Chicago..... 40.00 to 43.00
Six-inch and over, N. Y..... 28.50 to 30.50
Four-inch, New York ..... 34.50 to 36.50
Stand. fittings, Bir. base.... $100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

STEEL BARS

Baltimore	3.00c
Boston	3.265c
Buffalo	3.00c
Chattanooga..	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	3.00c
Los Ang.	3.40c
New York‡(d)	3.10c
Philadelphia..	2.60c
Pittsburgh	2.60c
Portland	3.15c
San Frans.	2.40c
Seattle	3.00c
St. Louis	3.00c
St. Paul	3.00c
Tulsa	3.25c

IRON BARS

Baltimore	3.25c
Boston	3.265c
Buffalo	3.15c
Chattanooga..	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia..	2.60c
St. Louis	3.00c
Tulsa	3.25c

REINFORC. BARS

Baltimore	2.50c-3.31c
Boston	3.10c-3.25c
Buffalo	2.95c
Chattanooga..	3.00c
Cincinnati	3.00c
Cleveland	2.10-2.25c
Detroit	2.85c
Houston	3.00c
Los Ang. cl.	2.40c
Los Ang. lcl..	2.70c
New York..	2.65c-3.10c
Phila.	2.40c-3.00c
Pittsburgh	2.60c
San Fran. cl.	2.30c
San Fran. lcl.	2.50c
Seattle	3.00c
St. Louis	3.15c
Tulsa	3.25c
Young.	2.30c-2.60c

SHAPES

Baltimore	3.00c
Boston	3.35c
Buffalo	3.25c
Chattanooga..	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los Ang.	3.40c
New York(d)	3.10c
Philadelphia..	2.50c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	2.40c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.50c

PLATES

Baltimore	3.00c
Boston	3.365c
Buffalo	3.25c
Chattanooga..	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles..	3.40c
New York(d)	3.30c
Philadelphia..	2.50c
Phila. floor	5.10c
Pittsburgh	2.85c
Portland	3.15c
San Fran.	2.40c
Seattle	3.00c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.50c

NO. 10 BLUE

Baltimore	3.25c
Boston	3.915c
Buffalo	3.50c
Chattanooga..	3.50c
Chicago	3.20c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.35c
Houston	3.90c
Los Ang.	3.95c
N. Y. (d)	3.00c-3.40c
Portland	4.00c
Phila.*† (e)..	3.05c
Pitts.**	2.60c to 2.85c
San Fran.	3.65c
Seattle	3.75c
St. Louis	3.45c
St. Paul	3.40c
Tulsa	3.70c

NO. 24 BLACK

Balt.*†	3.50c
Boston	4.70c
Buffalo	3.70c
Chattanooga..	3.65c
Chicago	3.55c
Cincinnati	3.75c
Cleveland	3.60c
Detroit	3.50c
Los Ang.	4.70c
New York..	3.50c-3.65c
Phila.*†(e)	3.55c
Pitts.**	3.40c
Portland	4.50c
San Fran.	4.15c
Seattle	4.25c
St. Louis	3.80c
St. Paul	3.545c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Boston	5.45c
Buffalo	4.10c
Chattanooga..	3.95c
Chicago	4.10c
Cincinnati	4.25c
Cleveland	4.00c
Detroit	4.00c
Houston	5.40c
Los. Ang.	5.10c
New York..	4.00c-4.10c
Phila.*† (e)	4.00c
Pitts.**	4.00c
Portland	5.00c
San Fran.	4.65c
Seattle	4.75c
St. Louis	4.35c
St. Paul	4.23c
Tulsa	5.10c

BANDS

Baltimore	3.50c
Boston	3.75c-4.25c
Buffalo	3.35c
Chattanooga..	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter	3.15c
Houston	3.65c
Los Ang.	4.30c
New York(d)	3.40c
Philadelphia..	2.90c
Pittsburgh	2.95c
Portland	3.50c
San Fran.	3.75c
Seattle	3.50c
St. Paul	3.75c
Tulsa	3.45c

HOOPS

Baltimore	3.50c
Boston	4.90c-5.40c
Buffalo	3.90c
Chicago	3.50c
Cincinnati	3.75c
Cleveland	3.55c
Det. No. 14 & lighter	3.65c
New York	3.75c
Philadelphia..	3.15c
Pittsburgh	3.60c
Seattle	4.90c
St. Paul	3.75c

COLD FIN. STEEL

Rounds & Hexagons

Baltimore (c)	3.30c
Boston	3.50c
Buffalo	3.15c
Chattanooga*	3.75c
Chicago	3.10c
Cincinnati	3.50c
Cleveland	3.10c
Detroit	3.40c
Los Ang. (a)	4.50c
New York	3.40c
Philadelphia*	3.40c
Pittsburgh	3.10c
Portland (a)	4.50c
San Fran.(a)	4.25c
Seattle (a)	4.50c
St. Paul (a)..	3.85c
St. Louis	3.35c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted. (a) Rounds, hex. only.

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	5.65c
Chicago (soft) (b)..	5.65c
Cincinnati	5.80c
Clev. (b)	5.55c
Detroit	5.40c
Phila. (c)	4.55c
New York	4.55c

(b) Net base straightening, cutting, boxing 1 ton or more.
(c) Plus mill, size and quantity extras.
(d) Minus quant. diff.
(e) New mill classif.
‡Domestic bars.
*Plus quantity extras.
**Less than 25 sheets.
*†50 or more bundles.

Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 7.75c, Conn., for copper

Sheets

Yellow brass (high)	15.25
Copper, hot rolled	17.37½
Lead, full sheets (cut ½c more)	8.25
Zinc sheet (100-lb. base)	9.00

Tubes and Pipes

Seamless yellow brass (high)	20.12½
Seamless copper	19.87½

Rods

Yellow brass (high, full turnings)	13.50
Naval brass	14.62½

Anodes

Copper, untrimmed	14.87½

Wire

Yellow brass (high)	15.75

Old Metals

Dealers' buying prices, cents lb.

No. 1 Composition Red Brass

New York	4.50 to 4.75
Chicago	4.25 to 4.75
Cleveland	4.50 to 5.00
St. Louis	4.00

Heavy Yellow Brass

New York	2.75 to 3.00

Heavy Copper and Wire

New York	5.50 to 5.75
Boston	5.00 to 5.25
Chicago	4.25 to 5.00
Cleveland	4.50 to 5.00
St. Louis	4.25 to 4.50

Composition Brass Borings

New York	4.00 to 4.50

Yellow Brass Tubing

Cleveland	3.00 to 3.25

Light Copper

New York	4.50 to 4.75
Chicago	4.25 to 4.50
Cleveland	4.00 to 4.50
St. Louis	4.00

Light Brass

Boston	2.00 to 2.25
Chicago	2.37½ to 2.62½
Cleveland	2.00 to 2.25
St. Louis	2.25

Zinc

New York	1.00 to 1.25
Cleveland	1.25 to 1.50
St. Louis	1.50

Aluminum

Clippings, soft, Cleveland	12.50 to 13.00
Clippings, hard, Cleveland	9.00 to 10.00
Borings, Cleveland	3.50 to 4.50
Mixed cast, Cleveland	4.00 to 5.00
Mixed cast, Boston	3.75 to 4.00
Mixed cast, St. Louis	4.00

Secondary Metals

Remelt aluminum No. 12	9.00 to 10.50
Brass ingots, 85-5-5-5	7.62½

Metals

Copper Declines to New Record of Low of 7.25c—Tin and Zinc Also Easier—Lead Holds

New York—A generally easier situation prevails in nonferrous metals with perhaps the single exception of lead. Copper at 7.25c, Connecticut, is now the lowest in the history of the metal. Resale metal has been sold at a concession of ⅛-cent from this price.

Straits tin has shown a weakening tendency the past few days and part of recent recovery in the metal has been offset. Lack of progress in curtailment of production and sympathy with declining tendency in commodity and security markets are contributing factors in the decline. Zinc now is quoted lower after holding steady for several weeks. Lead holds at the quotation obtaining for more than two months.

Copper—The decline in electrolytic copper to the lowest price in history is attributed to a further increase in stocks to new record levels and the continued light demand from both domestic and foreign consumers. Some custom smelters still are asking 7.50c, but the market seems fairly well established at the 7.25c level. The prevailing price for copper had been holding fairly steady at 7.50c up to the cut of a quarter-cent Tuesday. Producers officially recognized the 7.50c price last week when products were placed on this basis.

Tin—Straits metal had declined to 25.37½c Tuesday after rising to above 27.00c within the past few weeks. August statistics were disappointing to the trade and the market since has tended downward. Current figures indicate that stocks are rising rather than diminishing. Tin in English warehouses Monday amounted to 31,198 tons, a rise of 253 tons from a week previously.

Aluminum—Buying is in small volume. Quotations, however, remain steady and unchanged.

Zinc—After holding steady for several weeks prime western metal has eased off to 3.75c, East St. Louis. Statistical position of the market improved during August but stocks still are excessive and demand has been far from approaching expectations. Slab zinc stocks as of Sept. 1 totaled 129,701 tons, against 131,833 tons a month ago and 126,835 tons a year ago.

Lead—A steady situation prevails in lead, although buying during the past few days has been light. The quotation has held at 4.22½c, East St. Louis, for more than two months. Stocks of lead declined for the third month in August, bringing the total on hand Sept. 1 to the lowest level since the end of March. August shipments, however, showed a substantial reduction from July.

Antimony—The market for antimony continues dull and slightly easier.

By-Products Sales Light; Prices Are Unchanged

New York—While definite action on higher prices for benzol and xylol has not materialized, prices are firm and an early advance in both is predicted. Supplies are light and some distributors are behind on shipments, though current buying is not heavy. Toluol stocks are being lowered.

Coke By-Products

Per Gallon, Producers' Plants, Tank Lots

	f.o.b.	Spot
Pure benzol		$0.18
90 per cent benzol		0.18
Toluol		0.27
Solvent naphtha		0.24
Commercial xylol		0.24

Per Pound at Producers' Plants in 250-Pound Drums

Phenol	0.16 to 0.17

Per Pound at Producers' Plants

Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75

Per 100 Pounds Atlantic Seaboard

Sulphate of ammonia	$1.30

Prices of the Week, Cents a Pound

	Copper—Electro delivered	Copper—Lake delivered	Copper—Casting refinery	Straits Tin New York Spot	Straits Tin New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
September 9	7.50	7.87½	7.25	25.70	26.05	4.40	4.22½	3.80	22.90	6.55	35.00
September 10	7.50	7.62½	7.25	25.85	26.25	4.40	4.22½	3.80	22.90	6.50	35.00
September 11	7.50	7.62½	7.25	25.75	26.12½	4.40	4.22½	3.80	22.90	6.50	35.00
September 12	7.50	7.62½	7.25	25.75	26.12½	4.40	4.22½	3.80	22.90	6.50	35.00
September 14	7.50	7.62½	7.25	25.50	25.87½	4.40	4.22½	3.80	22.90	6.50	35.00
September 15	7.25	7.62½	7.00	25.37½	25.75	4.40	4.22½	3.75	22.90	6.50	35.00

AMERICAN SHEETS

Black—Galvanized—and Keystone Rust Resisting Copper Steel Sheets
USS Stainless and Heat Resisting Steel Sheets—Tin and Terne Plates for all Purposes

A splendid new hostelry of the middle West

THE NEW Park Plaza Hotel

St. Louis, Missouri

Architects—Laurence O. Schopp and Edwin J. Bauman
General Contractor and Owner—The Koplar Company, St. Louis
Sheet Metal Contractors—D. F. Edwards Heating Company, St. Louis

This fine structure represents a noteworthy achievement in our nation's hotel building. Naturally such an imposing and magnificent edifice required that each particular feature of its construction be of the highest quality material combined with excellent workmanship. In true keeping with these standards, over one hundred tons of

Apollo Best Bloom Galvanized Steel Sheets

were used in the construction of the ventilating system of this hotel.

US STEEL

American Sheet and Tin Plate Company

GENERAL OFFICES: Frick Building, PITTSBURGH, PA.

SUBSIDIARY OF UNITED STATES STEEL CORPORATION

KEYSTONE AMERICAN

PRINCIPAL SUBSIDIARY MANUFACTURING COMPANIES:

American Bridge Company
American Sheet and Tin Plate Company
American Steel and Wire Company
Carnegie Steel Company
Columbia Steel Company
Cyclone Fence Company
Federal Shipb'ldg. & Dry Dock Co.
Illinois Steel Company
Minnesota Steel Company
National Tube Company
Oil Well Supply Company
The Lorain Steel Company
Tennessee Coal, Iron & Railroad Co.
Universal Atlas Cement Company

Pacific Coast Distributors—Columbia Steel Company, Russ Building, San Francisco, Calif.
Export Distributors—United States Steel Products Company, 30 Church Street, New York, N. Y.

Europe

Effect of British Plans Not Yet Felt in Steel Industry—Belgium Cutting Wages

London—(*By Cable*)—Increases in British taxes, now assured, are being met cheerfully, but the effect of government economies is not yet clear. Little change is reflected in the steel industry. In Belgium, STEEL's correspondent at Brussels reports a reduction of 5 per cent in steel wages is proposed for Nov. 1, with a second 5 per cent reduction later. The position of the Belgian steel industry is considered favorable.

Little business is developing in France and producers refuse to make further price concessions. Some improvement is reported in Germany, due to the reduction in the bank rate. Discussions regarding steel price reductions is believed to favor the retention of the steel cartel.

South African railroads have placed orders for 9500 tons of rails with British mills. Demand for cast pipe for municipalities is well maintained in Great Britain. The market for pig iron appears brighter. Exports from Middlesbrough are heavier than in August. Coke prices are stiffening. The market for galvanized sheets and tin plate is stagnant.

British Steel Hampered By Economy Program

Birmingham, Eng.—British industry is anxious to know what the government schemes of economy are likely to be and the steel trade especially is wondering how far it will be affected. With the cry of economy on every hand the outlook is uncertain. A few more orders have been placed in most markets this week, but abstention from buying in August has had more to do with this than any real expansion.

An order for 5000 tons of foundry products has just been received by Dorman Long & Co., Middlesbrough, and the Teesside Bridge & Engineering Co. This will mean reopening of two foundries at the Port Clarence Works of Dorman Long & Co. and the provision of employment for 30 or 40 men for six months. The order is for coke oven doors for the firm of Simon Carves Ltd., Manchester. It will also mean that a substantial tonnage of pig iron will be needed, thus giving a small fillip to the trade of the northeast coast.

A new depot for railway cars to accommodate 300 is being built for the Piccadilly railway and a contract for the steel has been placed with E. C. & J. Keay (1926) Ltd., Birmingham, one of the best known firms in the Midlands, while a further contract for construction of the depot building has been awarded to Sir Robert McAlpine & Sons London.

Constructional engineers in the Midlands are short of new work, especially for heavy tonnages. Steelworks locally are not receiving much benefit and instances can be found where the mills are waiting on every mail before rolling programs can be arranged.

More inquiries on the northeast coast inspire hopes of revival. Deliveries to Scotland have been resumed and notwithstanding the offer of cheap Continental iron Middlesbrough is getting a share of the orders from Scottish foundrymen. A few sales of east coast hematite iron to Midlands and Sheffield consumers are reported but supply exceeds the demand and quotations of £3 1s ($14.82) per ton for mixed numbers can be shaded.

Three Barrow Stacks Active

Only three furnaces remain in blast in the Barrow area. The North Lonsdale Iron Co. closed down its only remaining furnace in blast last week. Smelting operations are also temporarily suspended at Barrow while the Cleator Moor works has been idle for a long period. The Millom & Askom Co. has only one furnace in blast.

Prices are easy for Continental materials but merchants in the Birmingham district report the market is stagnant. For billets a quotation of £3 18s 6d ($19.06) was common and small steel bars were heard of as low as £4 6s 6d ($21.01) though a number of sellers refuse to touch business on that basis.

In the Welsh tin plate market the advance in price of tin is viewed with some concern by tin plate makers.

In galvanized sheets there is little movement and prices are sagging.

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Sept. 14	British gross tons U. K. ports		Continental metric tons Channel or North Sea ports	
Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)				
PIG IRON				
Foundry, 2.50-3.00 Silicon	$14.22	2 18 6	$14.42 to $11.66	2 7 0 to 2 8 0
Basic bessemer	14.58	3 0 0*	10.94 to 11.18	2 5 0 to 2 6 0
Hematite, Phos. .03-.05	14.82	3 1 0	.....	.....
SEMIFINISHED STEEL				
Billets	24.30	5 0 0	$14.09 to $14.34	2 18 0 to 2 19 0
Wire rods, No. 5 gage	41.31	8 10 0	24.30	5 0 0
FINISHED STEEL				
Standard rails	40.10	8 5 0	$31.59	6 10 0
Merchant bars	1.52c	7 0 0	.70c to .72c	3 4 0 to 3 5 0
Structural shapes	1.68c	7 15 0	.68c to .69c	3 2 0 to 3 3 0
Plates, †¼-in. or 5mm.	1.79c	8 5 0	.83c to .84c	3 15 0 to 3 16 0
Sheets, black, 24 gage or 0.5mm.	1.90c	8 15 0	1.68c to 1.71c	7 12 6 to 7 15 0
Sheets, gal., 24 gage, corr.	1.93c	8 17 6	1.94c to 1.98c	8 17 6 to 9 0 0
Bands and strips	2.06c	9 10 0	.88c to .91c	4 0 0 to 4 2 6
Plain wire, base	1.84c	8 10 0	1.11c	5 1 3
Galvanized wire, base	2.39c	11 0 0	1.36c	6 3 9
Wire nails, base	2.39c	11 0 0	1.13c	5 2 6
Tin plate, box 108 lbs.	$3.28	0 13 6	$3.20	0 13 2‡

British ferromanganese £17 9s 6d ($85.00) delivered Atlantic seaboard, duty-paid. German ferromanganese £9 0s 0d ($43.80) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

	£ s d		French Francs		Belgian Francs		Renten Marks	
Fdy. pig iron, Si. 2.5	$14.22	2 18 6	$11.37	290(2)	$12.83	460	$18.53	78
Basic bessemer pig iron	14.58	3 0 0*	10.19	260(1)	11.58	415	20.31	85.50
Furnace coke	2.67	0 11 0	5.68	145	5.16	185	5.08	21.40
Billets	25.52	5 5 0	16.46	420	17.44	625	26.25	110.50
Standard rails	1.79c	8 5 0	1.41c	785	1.57c	1,210	1.37c	127
Merchant bars	1.63c	7 10 0	.90c	500	.78c	600	1.38c	128
Structural shapes	1.90c	8 15 0	.99c	550	.77c	595	1.35c	125
Plates, †¼-in. or 5mm.	1.95c	9 0 0	1.26c	700	.92c	705	1.59c	147
Sheets, black, 24 ga. or 0.5mm.	1.90c	8 15 0	2.09c	1,160	1.82c	1,400	1.26c	117
Sheets, galv., corr., 24 ga. or 0.5mm	2.03c	9 7 6	2.39c	1,325	2.47c	1,900	3.56c	330
Plain wire	1.84c	8 10 0	1.68c	935	2.08c	1,600	2.24c	207
Bands and strips	2.06c	9 10 0	1.13c	625	.78c	600	1.60c	148

*Basic. †British ship-plates, Continental bridge plates. ‡German.
British quotations are for basic open-hearth steel, Continental usually for basic-bessemer steel.

Machinery

EARLY September recovery in the machine tool industry cannot be recognized as a fact, unless certain recent and rather sensational orders placed by builders of automobiles and automobile engines be considered as indicative of a continued upward trend. Judging from drastic reductions in personnel and in operations made during the past few days, faith in fall recovery by no means is general. Obviously, many machine tool builders are preparing for a long, hard winter. On the other hand, several experienced builders are making conservative preparations for mild domestic recovery in October, and for further Russian business.

New York—Except for an occasional flurry in automotive buying, machine tool orders and inquiry are light. Demand on the part of general manufacturing industries, metalworking shops and railroads, is at a low point. September thus far has brought no seasonal increase in either business or inquiry. Many machine tool building shops continue to be down or operating on greatly reduced schedules, the few exceptions being those who recently participated in substantial orders placed by certain automobile and engine builders. Ball bearing producers are experiencing the dullest period in several years, slightly increased schedules planned by automobile producers not yet being reflected in their operations.

Indications now are that the contract for equipment for the 207th street subway shops will be placed with lowest bidder on the entire lot, the successful bidder to purchase the machines from various builders and install the same. Government inquiry continues, but in smaller volume. Bids went in this week on a list of miscellaneous tools for sheet metal and wood-working shops at Washington, including three small lathes and grinders.

Part of the requirements on the Lycoming Mfg. Co. list for Williamsport, Pa., have been placed, including special milling machinery which will be built in Cincinnati. Additional machinery is being figured on, this including boring equipment. The total amount involved may reach $400,000. It is understood this equipment is to meet engine block changes, as well as expansion in capacity for the Auburn automobile interests.

Worcester, Mass.—The domestic market is still quiet with only a rather indefinite upward movement in inquiry from automobile sources to give it tone. Lack of foreign commitments leaves local manufacturers at a distinct disadvantage in view of prior bookings from European interests.

So far there is little indication that domestic inquiry will gain much strength this month. Some manufacturers regard the awakening of demand from the automobile makers as the forerunner of the upward movement which has been confidently expected this fall. Others, however look upon genereal economic conditions as too adverse to permit of sufficient increase in automobile production to insure augmented demand for production machinery. So far purchases have been confined to those machines needed for changes in present models.

New England manufacturers generally are looking forward to conditions this winter comparable to those of last winter and preparations are being made accordingly in several cases.

Pittsburgh—The outlook in the machine tool market is not bright. Sellers see no prospect of an early improvement in demand, inasmuch as inquiry is at a slow rate and users show little interest in new equipment.

Occasional orders are being received week by week but such business usually represents either special equipment or single tools that are urgently needed. The volume of business remains at the slow rate of last month, although heavy machinery builders remain fairly well engaged.

Cleveland—Watchful waiting for the oft predicted fall recovery on the part of machine tool builders in this territory has not as yet been rewarded to an extent sufficient to curtail further drastic cuts in personnel and in operations.

Even though a fair share of recent orders for equipment for automobile and automobile engine projects has been placed here, there is a tendency to view this business as a flurry rather than as a definite upward trend. It is apparent in several cases that preparations are being made for another dull winter.

On the other hand there are companies which retain faith in a slow upward trend beginning in October, and are keying up sales efforts to help this to materialize. In most cases those who take this attitude recently have developed new machines of such importance as to warrant belief that users will be interested in buying them ahead of active revival in manufacturing.

Chicago—Only about a dozen single items comprise actual machine tool inquiry in this market. Programs of Inland Steel Co. and South works of the Illinois Steel Co. have been postponed indefinitely, and it is understood the St. Paul railroad list of about 50 items will not be revived immediately.

Light manufacturing operations and schedules of the tool and die shops are not much improved from late August. Santa Fe railroad has completed purchases against the list it has had before the market since last spring.

Plans of the International Harvester Co. for a supplementary list of standard machine tools remain indefinite. Prospective work in the Milwaukee district has failed to materialize, although Allis-Chalmers Mfg. Co. may be in the market later for its Advance-Rumely division at LaPorte, Ind.

Opening Date Announced On Equipment for Panama

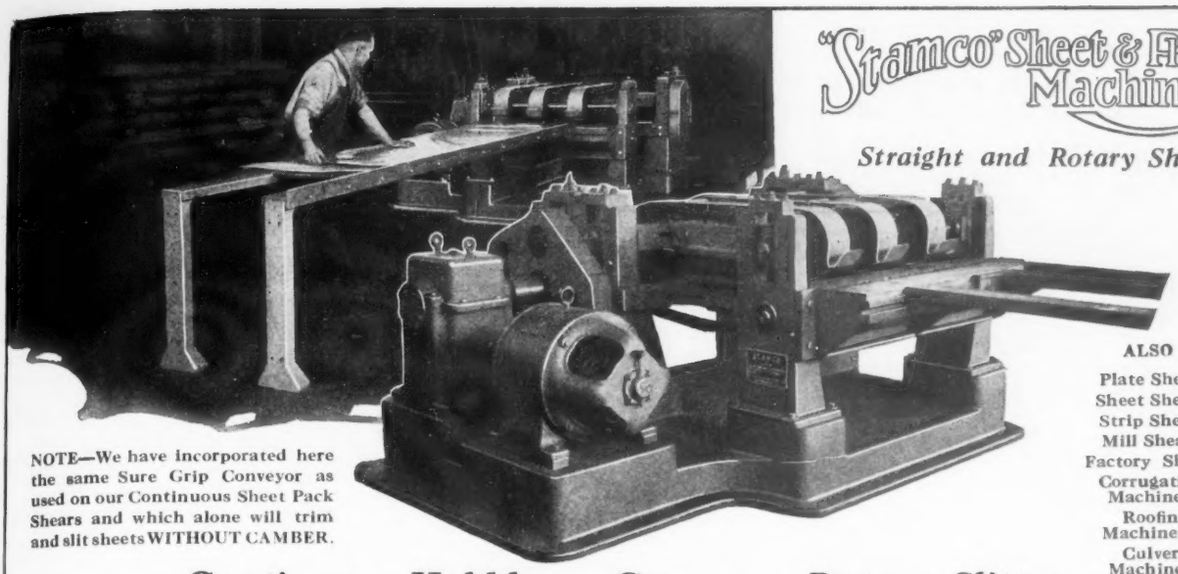
Washington—Announcement has been made that bids are to close Oct. 14, with the purchasing officer, Panama canal, at the office in Washington, on hydraulic and electrical apparatus for the Madden power dam.

This list includes one 75-ton crane, in addition to hydraulic turbines, turbine governors, generators, transformers, an oil circuit breaker, lightning arrester, switches and switch board, oil purifier, air compressor, and other auxiliary equipment.

Hoist Orders Increase

New York—Members of the Electric Hoist Manufacturers' association report the number of hoists ordered in August increased 7.567 per cent, as compared with the previous month. Value of the orders increased 3.459 per cent over July.

Shipments, however, were 47.324 per cent lower in August than in July.



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NOTE—We have incorporated here the same Sure Grip Conveyor as used on our Continuous Sheet Pack Shears and which alone will trim and slit sheets WITHOUT CAMBER.

Continuous Holddown Conveyor Rotary Slitter

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NOT mere'y punching holes in metal. With us, perforating is a specialty, requiring knowledge of both metals and dies.

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New York Office, 114 Liberty St.

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New England

BOSTON—Trump-Lite Co. has established operations at 434 Harrison avenue for the manufacture of metal bridge lamps.

EVERETT, MASS.—Parkway Radio Mfg. Co. has started production of radio sets at 2050 Revere Beach parkway.

LYNN, MASS.—Essex Burner Inc., 168 Franklin street, has been organized for the manufacture of a kitchen range burner.

New York

BUFFALO—Truck Equipment Co. Inc., 1791 Fillmore avenue, is building a plant addition having 3500 square feet of floor space. Ellsworth R. Boeck is president.

MINEOLA — Constructing quartermaster, Mitchell field, has let contract for four hangars, machine shop, operations building, warehouse, etc. Total cost is estimated at $760,000.

NEW YORK—Modern Art Products Corp. has been incorporated with $5000 capital by M. A. Harris, 1451 Broadway, to make metal products.

NEW YORK—Perfect Automatic Cigar Machine Corp. has been incorporated with 100 common shares by P. Adler, 8 West Fortieth street.

NEW YORK—Dumont Electric Co., 42 West Seventeenth street, has taken space at 453 Broome street for the manufacture of parts and equipment for electrical installations.

New Jersey

ABSECON — Metal Edge Fiber Products Co. will erect a 2-story plant at Ohio avenue and Mill road. Structure will be 50 x 150 feet. Cost is estimated at $40,000.

PERTH AMBOY—S. & J. Tool Co. has been incorporated with 5000 common shares by David T. Wilentz, 265 Madison avenue, to make automotive accessories.

SOUTH AMBOY—United Lead Co. proposes to build a 2-story plant unit. Cost will approximate $40,000.

Pennsylvania

COATESVILLE—Municipal council proposes to build a sewage disposal plant. Remington, Vosbury & Goff, 509 Cooper street, Camden, N. J., are engineers.

FLEETWOOD—Bowers Battery Mfg. Co. Inc. has been incorporated with $25,000 capital by Clarence P. Bowers, 34 South Fifth street, Reading, Pa., and Charles F. Knoll, 116 Washington street northeast, Fleetwood, to manufacture and deal in batteries, parts and service station equipment.

HANOVER—Stewart Oil Burner Co. Inc. has been incorporated with $25,000 capital by S. Stewart and John D. Flickinger, to manufacture and deal in oil burners, boilers, valves, fittings and other machine parts.

PHILADELPHIA—Schuch Machinery Co., 435 New street, has acquired a 4-story building at Third and Spring Garden streets.

PHILADELPHIA—Metalcraft Products Inc has been incorporated with $5000 capital by Harry Abel, 4827 Pine street, to manufacture and sell radiator covers and other household and office fixtures.

PHILADELPHIA—Economy Machine & Tool Co. Inc. has been incorporated with $10,000 capital by Henry C. L. Schnoor, 3262 Cedar street, and Raymond L. Morse, 4728 North Fourth street, to design and manufacture plating machines, tools and other metal appliances.

PITTSBURGH—Norton Co., Worcester, Mass., is taking bids for construction of a warehouse on Carson street. Structure will be 3 stories, 100 x 144 feet.

PITTSBURGH—Tracy Mfg. Co. has been incorporated with 250 no par shares by Bertrand P. Tracy, 894 Thorn street, Sewickley, Pa., and Irwin Lockhart, 215 South Mathilda street, Pittsburgh, to manufacture and sell household fixtures and equipment.

READING—Modern Iron Works has been incorporated with $25,000 capital by John Bauman, Shillington, Pa., and John H. Herbein, 624 North Twenty-fifth street, Pennside, Berks county, Pa., to manufacture and deal in structural steel, ornamental iron, brass and bronze work.

Ohio

CANTON—City plans to purchase a 3,000,000-gallons per day pump with motor.

MARIETTA—Monongahela West Penn Power Co. has plans for a substation to be built on Sixth street. Cost is estimated at $100,000.

ROCKY RIVER—Village proposes to build a sewage disposal plant to be shared with Bay Village and Fairview. Total cost is estimated at $90,000. C. W. Courtney is engineer.

TOLEDO—International Harvester Co., 606 South Michigan avenue, Chicago, has let contract for a 2-story branch plant and warehouse here. Cost is estimated at $150,000.

Indiana

BLOOMINGTON—Indianapolis Tri-Valve Pump Mfg. Co., Indianapolis, is considering a plant location here, negotiations being handled through the local chamber of commerce, M. R. Currie president. Company manufactures electric pumps, automatic jacks and other accessories.

INDIANAPOLIS—American Development Corp. has been organized here with Harry F. Taylor as president and W. S. McClintic as secretary-treasurer. Company proposes to develop an hydro-electric project about 50 miles from here on the Eel river, including erection of a power plant.

KENDALLVILLE—Municipal council is considering construction of a sewage disposal plant, to cost $100,000.

Michigan

DETROIT—Ford Motor Co., Fordson, Mich., will build two substations at its Lincoln plant, West Warren and Livernois avenues. Giffels & Vallet, 604 Marquette building, are architects.

DETROIT—Marine Metal Co., 630 Wilkins street, has been incorporated with $1000 capital by Max Iwrey, 10205 McQuade avenue, to deal in scrap metals.

DETROIT—Savalite Alarm Co., 5 West Larned street, has been incorporated with $25,000 and 25,000 common shares by William C. Wakefield 896 Longfellow avenue, and Moore Meigs, 1671 East Jefferson avenue, to manufacture and deal in alarms and signal devices.

DETROIT—American Blower Corp., C. T. Morse vice president, 6000 Russell street, has secured a 17-acre tract on Tireman avenue for a new plant. Maturity probably will be next year. Company manufactures air handling and conditioning apparatus.

YPSILANTI—Ford Motor Co., Fordson, Mich., will build a plant unit here. Plans are by Albert Kahn, 1004 Marquette building, Detroit.

Illinois

AURORA—Coach shop of the Chicago, Burlington & Quincy railroad recently was virtually destroyed by fire. Loss is estimated at $500,000.

CHICAGO—Eddy Stoker Corp., 372 West Grand avenue, has been incorporated with $50,000 capital by G. Donald Whitehouse, 228 LaSalle street, to manufacture coal stokers.

CHICAGO—Clark Sanding Machine Co., 1254 Rosedale avenue, has been incorporated with $1000 capital by Bippus, Rose, Bert & Reeves, 134

North LaSalle street, to engage in manufacturing.

CHICAGO—Thompson Aeronautical Corp., Union Trust building, Cleveland, or care of J. C. Llewellyn, architect, 38 South Deaborn street, Chicago, has a building permit for construction of a hangar unit, 101 x 155 feet, at a cost of $32,000. Contract is held by A. & E. Anderson, 221 North LaSalle street.

CHICAGO—Republic Metals Inc., 222 West Forty-ninth street, has been incorporated with $25,000 and 750 no par shares by Jones, Addington, Ames & Seibold, 77 West Washington street, to engage in manufacturing.

CHICAGO—Keith Dunham Co., 110 South Dearborn street, manufacturer of oxyacetylene welding equipment, has purchased a site, 160 x 408 feet, in the Hodgkins, Ill., industrial area for later expansion. A plant addition is to be erected.

HARTFORD—Council, C. W. Brown president, proposes construction of a municipal light and power plant and is having preliminary plans prepared.

ROCKFORD—Loyal Tool Co., 1008 Mulberry street, has been incorporated with $25,000 capital by Hinchliffe, Miller & Thomas, to deal in property.

Southern States

NEW CASTLE, DEL.—Intercontinental Pipe & Mining Co., 122 East 42nd street, New York, is holding in abeyance plans for reconstruction and equipment of a plant here. Project calls for expenditure of approximately $1,000,000. Work probably will proceed in December or early next year.

WASHINGTON—Bureau of supplies and accounts, navy department, will receive bids Sept. 29 on schedule 6462 for two main motors and spare parts.

WASHINGTON—General purchasing officer for Panama canal will receive bids Oct. 14 for power apparatus for the Madden power plant.

FT. PIERCE, FLA.—Heck & Hickman Marine Ways & Machine Shop Co. plans to build boat ways and a machine shop, 40 x 50 feet. Estimated cost, $15,000.

PENSACOLA, FLA. — Bureau of supplies and accounts, navy department, Washington, will receive bids Sept. 22 on schedule 6456 for one gasoline driven generating set, and on schedule 6505 for one portable electric swivel crane.

ANNAPOLIS, MD.—Bureau of supplies and accounts, navy department, Washington, will receive bids Sept. 22 on schedule 6511 for eight direct current motors.

BALTIMORE — Stanford Metal Stamping Corp. has been incorporated by Israel Silberstein, 2401 Eutaw place.

VICKSBURG, MISS.—Municipal airport commission, S. Albrecht chairman, proposes construction of a hangar and shop buildings here at a cost of approximately $75,000. A. G. Seifreid, Baton Rouge, La., is engineer.

HAMPTON, VA.—Lt. E. C. Hayden, constructing quartermaster, Langley field, receives bids Sept. 23 for a 50,000-gallon tank and installation of boiler plants.

Missouri

FESTUS—Komnick Process Brick Co. will start construction of a plant for the manufacture of a new type of brick. Cost will approximate $115,000.

KANSAS CITY—Rouse Mfg. Co. has been incorporated by Earl E. Rouse, 2611 Amie road, to manufacture hotel equipment.

ST. LOUIS—Pittsburgh Erie Saw Co., 3327 Lindell street, will build a 2-story plant, 44 x 210 feet, at 1569 Tower Grove avenue. Contract is held by William H. and Nelson Cunliffe. Estimated cost, $20,000.

Oklahoma

ENID—Industrial Iron Works Inc. has been incorporated by E. C. Shriver.

MIAMI—Myers Mining & Milling Co. has been incorporated with $50,000 capital by L. W. Goings, to operate lead and zinc mines.

TULSA—Safeway Garage Door Control Co. has been incorporated with $5000 capital by C. C. Roberts, 1724 South Trenton street, to manufacture a metal door control device.

Texas

ARP—Texas Power & Light Co. will build substations on a transmission line being constructed from its plant at Trinidad, Tex.

BROWNSVILLE—Pan-American Airways Inc., T. E. Gilmore manager, will build two hangar units here. Preliminary plans have been prepared.

DALLAS—International Fire & Burglar Alarm Co. has leased space at 3104 Oak lane for manufacturing purposes.

KINGSVILLE—Aviation section, department of commerce, will lease a building being erected on East King avenue by Allen Furniture Co. Plant is to be equipped with machine shop.

SAN ANGELO—Magnolia Petroleum Corp. has let contract to Austin Bros., Dallas, Tex., for construction of a pump house, 14 x 16 feet, and shop, 34 x 80 feet.

SAN ANTONIO—South Texas Neon Corp. has been incorporated with $30,000 capital by C. C. Tyler, to manufacture electrical signs.

Wisconsin

CUMBERLAND—Cumberland Body Works has awarded contract for construction of a 50 x 50-foot shop building. A. Keeler is manager.

MANITOWOC—White House Milk Co., H. M. Clark pesident, is considering construction of a can manufacturing plant to cost $200,000, location here to depend on development of barge facilities for shipping. If facilities are not provided plant will be located at West Bend, Wis.

MILWAUKEE—Wisconsin Sheet Metal Works, recently organized by Stanley Gelhaar and Conrad Frank, is establishing a sheet metal shop at 1545 North Twenty-seventh street.

MILWAUKEE—Locher Schefrin Co., 1120 South Barclay street, is considering reconstruction of its foundry and smelting shop, recently damaged by fire. Three gas-fired smelting furnaces were included in the loss.

MILWAUKEE—Wadhams Oil Co., 907 South First street, will build a steel drum reconditioning shop, 35 x 100 feet, and a compounding house addition, 34 x 100 feet, at its plant at 1515 South Thirty-eighth street. Total cost is estimated at $60,000.

RACINE—Racine Stoker Mfg. Co. has been incorporated with 500 no par shares by Herbert M. Nelson Jr., Clifton O. Strom and William H. Armstrong.

WATERTOWN—Council will build a sewage disposal plant to cost $110,000. First unit will be erected immediately, at a cost of approximately $40,000. B. F. King is city engineer.

WISCONSIN RAPIDS — Council may purchase a new generating plant and equipment. C. P. Gross is city engineer.

Minnesota

DETROIT LAKES—City, E. J. Bestick clerk, will award contracts soon for motors and pumps.

Kansas

FT. RILEY—Constructing quartermaster, Marshall field, will receive bids Sept. 21 for an air corps double hangar with shop annexes.

Nebraska

WATERBURY—Machine shop of Elgert Bros., recently was damaged by fire. All equipment was destroyed.

Wyoming

RAWLINS—Rawlins Electric Light Co. proposes to enlarge its power plant. T. W. Hughes is manager.

Pacific Coast

LOS ANGELES—City water and light department will proceed with construction of the third unit of the

second division power plant, to have a capacity of 18,000 horsepower. Plans are being prepared. Cost is estimated at $1,000,000. H. A. Van Norman is department engineer.

LONG BEACH, CALIF.—City council will close bids Oct. 2 for installation of a 600-gallons per minute pump.

VALLEJO, CALIF.—Vallejo high school district will build a group of school units, to include a vocational training shop. Davis-Pearce Co., Builders building, Stockton, Calif., is architect. Total cost is estimated at $230,000.

PORTLAND, OREG.—Portland Battery Mfg. Co., East Seventeenth and Tacoma streets, proposes erection of a 1-story plant unit, 100 x 500 feet. J. W. DeYoung, 350 Salmon street, is architect. Cost is estimated at $100,000. Company manufactures batteries and battery plates.

Dominion of Canada

BURNABY, B. C.—Dominion Bridge Co., Lachine, Que., is having plans prepared for the second unit of its plant here. Estimated cost, $100,000.

CORNWALL, ONT.—J. G. Harkness, municipal clerk, is taking bids for one 3500 to 5000-gallon pump, one 2500-gallon pump with motor and one booster pump.

ORANGEVILLE, ONT.—Armstrong Foundry & Machine Shop Ltd. has been incorporated with $40,000 capital by Uriah W. Christie, to manufacture and deal in engines, machinery and tools.

ST. CATHERINES, ONT.—C. T. McBride, secretary, board of education, is interested in purchase of equipment for the proposed addition to vocational school. Cost is estimated at $180,000.

WINDSOR, ONT.—Packard Motor Car Co., 1580 East Grand boulevard, Detroit, will assemble automobiles here in a plant recently acquired. Principal equipment will be moved from Detroit.

MONTREAL, QUE.—Feldman Auto Parts Ltd., 6335 St. Lawrence boulevard, is considering construction of a plant on Hutchinson street.

New Trade Publications

DRYERS—C. O. Bartlett & Snow Co., Cleveland, in Bulletin No. 69 describes and illustrates the company's eleven styles of dryers, with data valuable to the dryer field in general.

AUTOMATIC TIME SWITCH—General Electric Co., Schenectady, N. Y., has issued a bulletin on a general purpose automatic time switch. Complete description is given, with illustrations and wiring diagrams.

CHAIN GRATE STOKERS—A bulletin by the Babcock & Wilcox Co., 85 Liberty street, New York, is devoted to its chain grate stokers, with halftones and line drawings to show construction. Typical setting views are also included.

RIDDLES—High grade workmanship is pointed out in foundry riddles described in a recent folder from Buffalo Wire Works Co. Inc., 316-326 Terrace, Buffalo. The riddles are supplied in steel or brass wire from 2 to 14 mesh.

TRUCK TANKS—Columbian Steel Tank Co., Kansas City, Mo., has issued a bulletin on truck tanks, featuring new developments in liquid-hauling equipment. It presents much of interest to users of this class of equipment.

V-FLAT DRIVES—Gates Rubber Co., Denver, recently issued bulletin V-39-501 describing flexible rope V-flat drives. Design data are given covering sheaves, belts, power and service. Illustrations show typical applications.

ALUMINUM PAINT—A 45-page booklet recently issued by the Aluminum Co. of America, Pittsburgh, contains data on aluminum paint and its uses. Its advantages in a wide variety of industrial applications are pointed out and typical uses illustrated.

HEAT EXCHANGER—Schutte & Koerting Co., Philadelphia, in current bulletins presents its polyplate heat exchanger and its rotameter for measuring the rate of flow in pipe lines. The bulletins are in color to distinguish opposing parts.

FIRST AID MATERIALS—Catalog No. FA-2 recently issued by Mine Safety Appliances Co., Braddock, Thomas and Meade streets, Pittsburgh, contains a complete listing of first aid supplies, including bandages, splints and tinctures adapted to industrial and general use. Description and illustrations of the items are included.

ELECTRO CHEMICAL PATTERNS—Product, process and wearing qualities of electrochemical foundry patterns are outlined in a recent leaflet from Pioneer Engineering & Mfg. Co., 8316 Woodward avenue, Detroit. Long life and accuracy are emphasized as money-saving factors.

TRAMRAIL—Application of tramrail equipment to materials handling in the foundry is the subject of a bulletin by the Cleveland Electric Tramrail division of the Cleveland Crane & Engineering Co., Wickliffe, O. Illustrations show how it has been used to solve problems in a number of foundries.

LATHES—South Bend Lathe Works, South Bend, Ind., has issued a new general catalog, No. 92. In its 128 pages, in two colors, it presents illustrations, descriptions and prices of lathes from 9 to 18-inch size. Several lathes of new model have been added in this catalog. Among these is a new underneath-belt motor-driven lathe in toolroom types as well as general purpose sizes.

MILL MOTORS—Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., has issued a bulletin on a new mill motor embodying the latest recommendations of the Association of Iron and Steel Electrical Engineers. It is applicable to steel mill auxiliary drives, cranes, hoists, shovels, ore and coal bridges and similar uses. The bulletin is No. 20525.

SILENT GEARS—Continental-Diamond Fibre Co., Newark, Del., has issued a catalog of its gears for silent, waterproof, long service. Numerous illustrations indicate application of these gears to lessen noise, wear and vibration. A section is devoted to engineering information and tables and formulas are given for use of gear makers.

HYDRAULIC DATA — Southwark Foundry & Machine Co. division of the Baldwin-Southwark Corp., Philadelphia, has compiled for the use of engineers a booklet on hydraulic and other data. It is designed for the use of the engineer engaged in the design or use of mechanisms for producing loads by hydraulic means. It contains many data the publishers believe had not previously appeared in print. This includes a pipe table and data on accumulators, pumps, intensifiers and shock valves, among others.

MONORAIL—Catalog B. of the American Monorail Co., Cleveland, is available to those interested in overhead material handling equipment. It presents changes and improvements in the equipment and new features designed to increase the scope and efficiency of its operation. A solution of many handling problems is presented, engineering data are given to assist engineers in designing plans for mechanical handling of materials. Illustrations show details of the equipment and a large number of installations in various lines of industry.

COLD-FINISHED BARS—Bulletin A by Joseph T. Ryerson & Son, Inc., Chicago, is devoted to cold-finished steel bars, describing the wide variety of shafting, screw stock and open-hearth case carburizing steels which have been developed to meet the needs of the present. It is designed to remove some of the confusion incident to the rapid development of this material in recent years. Explanation in non-technical language covers all grades from shafting to special accuracy stock, giving its use and telling why it serves certain purposes to best advantage. Methods of manufacture are explained and shop records show savings from the use of qualities best suited to the purpose.